

FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

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EDITORIAL COMMENT.

THE war will be won in the air." We have been told this again and again, and that by the people who are responsible for seeing that we have the necessary equipment of aeroplanes to ensure victory. There is no manner of doubt as to the correctness of the dictum. Both sets of belligerents are agreed on it, the Central Powers no less than ourselves. Indeed, it is only

How Production is Held Up. a few days ago that one of the most prominent German newspapers, in expressing uneasiness as to the growing superiority of the Allied artillery and air services in the West, said quite frankly that it was convinced the victory would fall to the side possessing definite superiority in these two arms. Again, the late Minister of Munitions told us the other day that we must strain every nerve to increase our output of machines, and went on to talk of the methods we must adopt to achieve that object. However, as there is no dispute so far as

the main proposition is concerned, we can take it as read that what we must aim at is an overwhelming mastery in the air, and all that falls to be discussed is whether or not we are making the best use of our resources to attain our object.

Undoubtedly, things are vastly better than they were, but there are still many improvements to be made before it can be truthfully said that we are making the best of the resources we have at command. It is only a fortnight ago that we drew attention to the allegations published in the *Evening Standard* relative to the continuance of contracts for obsolete machines. Whether the disclosures of our contemporaries have led to a stirring among the dry bones of officialdom we have no means of knowing, but we are optimistic enough to believe that they have been productive of some good. But it is not only in the direction indicated that abuses affecting production exist. There is still room for a vast deal of reorganisation in the methods of the Air Board where they concern the securing of maximum production. Here is a case in point. A firm of manufacturers, whom we will call A, is engaged in the manufacture of engines which are the design of another concern, which we will designate B, and which engines have to be delivered to the works of B, some twenty or so miles away. Now, A is also engaged in the building of aeroplanes, and, if the transaction were being run on business lines and with an eye to maximum output, it would almost naturally follow that A would be instructed to put its own engines—or rather the engines it makes to B's designs—into those machines.

Alternatively, if A is under contract to build machines for which their own engines are not suitable, which may be the case though of that we are not at the moment able to speak with certainty, surely in the interests of economy and efficiency they should be instructed to build machines for which their motors are suitable. But that is not the departmental method at all—it would be too direct. What really happens is that A is instructed to use engines built by yet a third firm, C, for the planes they are constructing, with the result that it is no uncommon thing for otherwise completed machines to be hung up for greater or less periods of time while awaiting delivery of C engines, and in the meanwhile A is manufacturing and sending away more than enough of the B motors to equip them, provided they were suitable for the job, as they should be.

The really serious aspect of the matter is, as we have said, that these methods obviously obstruct production, and that very seriously. Besides, although we are dealing only with a single concrete case at the moment, there must remain the uneasy feeling that it is not likely to be an isolated one, and if the practice is at all widespread it is easy to see what a fatal effect it must have on production. It is when we have our attention drawn to such cases that we marvel the war is costing only a mere eight millions a day. The wonder is that it does not cost the country twenty millions! The question is a trite one, we admit, but how long could a private business keep out of bankruptcy if it employed such methods? Three months?

The Standardisation of Parts.

An International Committee to standardise the metal parts of aircraft is now sitting in New York, and the result of its labours is expected to be that these parts will be reduced to a few standard shapes, thus facilitating aircraft production on an enormous scale for the use of the Allies. On the face of it, this is an excellent thing, but we trust it will not be overdone. The International Committee will do well to keep it in mind that aircraft design is progressing almost from day to day, and that the best machine of to-day is hopelessly inferior to that of to-morrow. Undoubtedly, there are many metal parts and fittings of aircraft which can be very usefully standardised; but, on the other hand, it is possible so to overdo the manufacture of standardised parts that there would be serious danger of machines being turned out after they had become obsolete merely because contracts for particular designs had been placed on a basis of stocks of parts. We have suffered from the same sort of thing here, as we have had to point out in the columns of "FLIGHT" more than once, though not so much from over-standardisation as from want of precision. The main trouble seems to be that when parts have been ordered in large quantities and contracts placed for the resultant machines, no one cares to take the responsibility of ruthlessly scrapping an obsolete design. That is the case in businesses which have adopted the manufacture of the standardised article. We see it in the case of the cheap American car, which, although it may be a good enough production for the work it has to do, nevertheless lags hopelessly behind the practice of the day. In that case its want of up-to-dateness, if we may call it that, does not matter because it does not claim to be the best, nor does its work demand that it should necessarily be the best. The fact remains, however, that the first object of its manufacturers is a huge output before everything. That can only be attained through absolute standardisation of parts, which carries with it the disability that standardisation carried to an extreme is of necessity the sworn enemy of progress.

Standardisation is very much like business "systems." It is an excellent thing so long as it is kept in subjection and made to serve the interests of its masters. Put it in the position of master instead of servant and it becomes a drag on the wheels. We are by no means against the work of the International Committee. On the contrary, if it is kept within reasonable limits we can well see that it will assist materially in the acceleration of

the production of aircraft for the purposes of the war, but we think it is as well to utter a warning lest it should strive for over-standardisation and thus actually retard instead of helping along the acceleration of production, so far as the best and most up-to-date types are concerned.

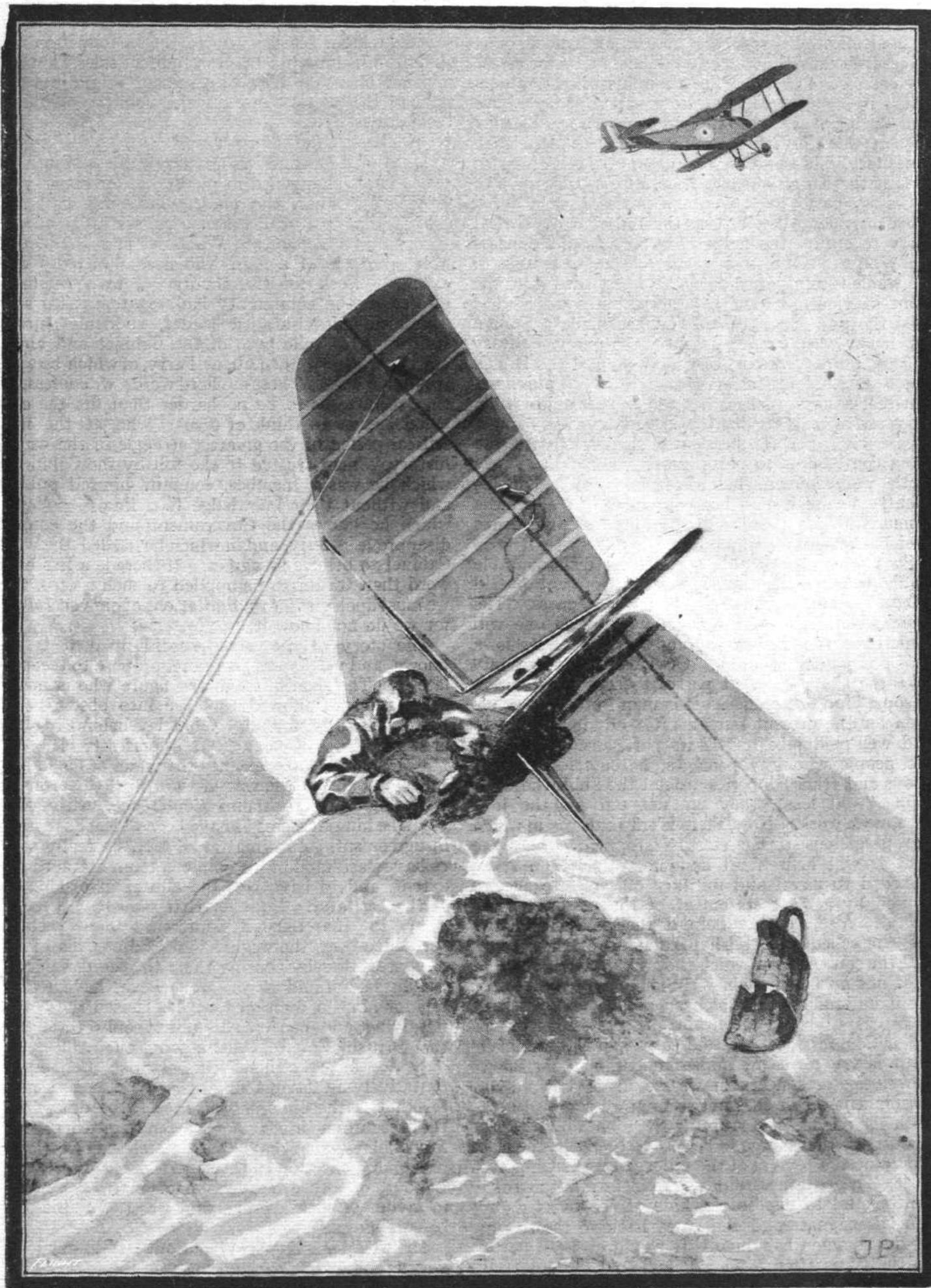
It is very evident that the enemy is **German Fear** becoming uneasy about the results of **British Air Offensive.** likely to follow on a defeat of their armies in Flanders. Until quite recently, the obedient organs of the

Hun Press have talked quite airily of German losses of ground in the West, and the "strategic retreat according to plan" has become a feature of their war articles. Now they seem to fear a great aerial offensive as being likely to follow on the eviction of the German hordes from the Belgian coast, when that has been accomplished. The *Vossische Zeitung* voices the fear thus:—

"A base in Flanders would enable England to annihilate with her air squadrons the whole of our industrial basin and to drive Germany completely from the seas. German industry would be at her mercy. We must hold our positions between the sea and the Lys, or we shall lose the war entirely. The fate of Germany is now being decided in Flanders."

There is no point in discussing whether or not we shall ultimately carry out aerial operations on the scale feared by "Aunt Voss." It is not at all a bad maxim to catch your hare before proceeding to cook him, and we have not yet succeeded in evicting the enemy from the Belgian littoral. But that will come, all in good time, and will bring with it all the possibilities that are frightening the enemy into expressions such as we have quoted above. Not the least interesting aspect is the implied confession that Germany recognises that in its last stages the war will be decided by aircraft. It further marks a very distinct drop in tone. Not so long ago the German Press was writing bombastically about "hacking through" and of bringing England to her knees. Now it obviously doubts whether Germany can even make a draw of the world-conflict. It is very much to be hoped that the apostles of Peace at any Price—who, fortunately, are a small if noisy minority here—will give all due significance to this alteration in the German manner of speaking of the war. Let them recollect that in Germany neither the Press nor the individual is given even the scant liberty of expression that is allowed here. On the contrary, nothing that is not in complete accord with the official views is allowed to be printed, or even spoke in public, so that when the German papers take to pessimistic utterances, such as that of "Aunt Voss" undoubtedly is, it is absolute evidence that the Huns are in a bad way and that we have only to keep going to beat them. If the pacifists will let that sink in and cease their prating, while the more determined get on with the war, things will come right, and that before very long.

It is very much to be hoped that more will be heard about the sale of honours, to which the Earl of Selborne drew the attention of the House of Lords recently. In the ordinary way of peace we should have been content to have allowed the matter to pass, so far



A BRITISH EXAMPLE OF REPRISALS.—“The pilot who destroyed the Gotha . . . attacked from the front and drove the enemy down to the water, where he observed him turn over, and saw one of the occupants hanging on to the tail. Thereupon he threw him his lifebelt, and did two or three circuits round him before returning to England.”—Extract from Admiralty communiqué describing the bringing down of a Gotha raider on Sunday.

as "FLIGHT" is concerned, as one that did not fall within our province to discuss. But things are different now, because the matter of honours and decorations has become one of universal concern in consequence of the very large number of distinctions which have been gained by our gallant officers and men during more than three years of war. To our way of thinking, it is an intolerable scandal that honours and decorations awarded for good service against the King's enemies should be equally open to any dirty party hack who can pass a cheque for a sufficiently large amount to the funds of a political party to ensure the favourable recommendations of the Whips. There is only one redeeming feature of the whole rottenly sordid business, regarded from the point of view we have set down, and that is that even the political partisan who has made a million out of hog-wash cannot purchase the purely military Orders and decorations, like the V.C. and the D.S.O. These at least are clear of the taint of purchase. But it irks us to realise that the gallant officer who, by years of long service to his country, has gained, say, a civil K.C.B., must rub shoulders with the smug contributor to party funds who, if the whole truth were known, has deserved nothing of his country so much as a hempen collar instead of the honourable one that will give him the precedence over his betters for which he has paid.

So far as we are able to see, the dishonourable traffic will continue so long as the present putrid Party system persists in all its rottenness. The system can only exist on money, and no one will contribute the necessary funds unless there is a *quid pro quo* forthcoming. Obviously, that can only take the shape of what passes as social distinction of some kind or another. It is manifestly impossible even for the present bureaucratic administration to find well-paid jobs for *all* its partisans. Moreover, the people who buy peerages, baronetcies, knight-hoods and other fripperies are not the kind who want "jobs"—at least, they are not out for the jobs that mean work. Now, there is only one way in which the pernicious traffic can be stopped. We agree that it will help if all honours, other than those awarded to naval and military officers, are accompanied by a clear statement of the reason for the award. Also, it may help if the political Parties are compelled to publish particulars of their funds and the sources from which they are derived, but that does not go far enough. The one thing that would stop the traffic, and which should be done without delay, is to bring it within the provisions of the Illicit Commissions Act, and to punish the traffickers with heavy terms of imprisonment. So far as we ourselves are concerned, we would go beyond imprisonment, which does not seem at all commensurate with the offence of corrupting the fountain of honour almost at the source. To properly meet the case would need a revival of the pillory and the whipping-post, but we are afraid we have grown too softly sentimental to expose the hide of the overfed provincial magnate and the Party hack to the scourge of the common hangman. It would do both parties to the transaction a lot of good—but we are afraid it cannot be. However, if they can both be given a swinging term of penal servitude it will do a lot towards the purification of public life. Obviously, we cannot expect the Government, which is tacitly the worst sinner, to introduce a measure of its own on the lines we suggest. Perhaps, therefore, Lord

Selborne, to whom the thanks of the country are due for having drawn attention to the disgusting scandal, might see his way to the introduction of a short Bill making the direct or indirect sale of honours a penal offence? The Government might not like it, but the whole sense of the country would be behind it.

The
Tragedy of
Arthur
Henderson.

Nothing more tragically painful has happened in public life for many years than the affair which will pass into political history as the "Henderson incident." We have had the deplorable spectacle of a man who has admittedly done excellent work for the country, a man whom all classes of the community had regarded as a sane, sound and level-headed leader, suddenly turning traitor to his colleagues of the Cabinet and almost equally traitor to the Labour Party, of which he was a trusted official. These are hard words, we confess, but they seem to us to be no harder than fits the case. What are we to think of a man who, at the most critical period of the greatest struggle in the world's history, a man trusted to the full by the Cabinet of which he was a member, commits himself publicly and without their knowledge to a line of policy of which he knows the Government and the country disapprove utterly, and in which he has led the whole Cabinet to believe he agrees. If there is a less harsh word than traitor to be applied to such a case, then we must apologise for the limitations of our vocabulary, for we do not know it.

The story of the whole sordid incident is well known, and we do not, therefore, propose to recapitulate it. The sooner it and the figure who is mainly concerned are allowed to lapse into obscurity the better it will be for all. What lay behind it all we are at a loss to imagine. It is perfectly clear that Mr. Henderson knew exactly the views of his Cabinet colleagues and of the rest of the Allied Governments regarding the Stockholm Conference, with which views he himself seems to have been at least ostensibly in agreement. As a matter of fact, he really seems to have vacillated in his opinions to an extraordinary extent, and to have met the almost invariable fate of the hesitator. However that may have been, he went to the Labour Conference and certainly succeeded in thoroughly misleading his fellow delegates, thereby causing them to record a decision which they would never, we believe, have reached but for him—a decision that has caused the gravest misgiving and consternation, not only throughout the British Empire, but among our Allies. Not only so, but the news that British Labour was tentatively in favour of a peace by negotiation—for that is the obvious inference to be drawn from the resolution in favour of sending delegates to Stockholm—must have had more than a slightly heartening effect on the enemy. The impression that Labour, or any other section of British opinion, is in favour of such a peace will, we trust and believe, be speedily reversed.

Mr. Henderson's "explanation" of Monday falls very far short of clearing him from the grave charges that lie at his door. In fact, to our way of thinking it is lame in the extreme. It explains nothing, except the personal which does not interest the plain person, who sees his conduct as that of one who attempts to run with the hare and hunt with the hounds. Of the point blank charge of treachery to

his colleagues, to the country, to the Allies, and to his Labour constituents, it says nothing and explains nothing. Not that we believe that treachery was deliberately calculated. We willingly concede that Mr. Henderson's record is a sufficient refutation of that, even if the definite charge had been made, which it has not. What really seems to be the case is that he has been a victim of his duality of office, and that he was torn between loyalty to the Cabinet

and the necessity for making sure of his more permanent job as secretary of the Labour Party, and has fallen between the two stools. In the result he has pleased nobody, has ruined himself as a public man, and has caused infinite harm, of which we cannot know the full measure yet, if ever. In these days the punishment will doubtless be held to be sufficiently severe. In sterner times men have gone to the Tower and the block for much less.



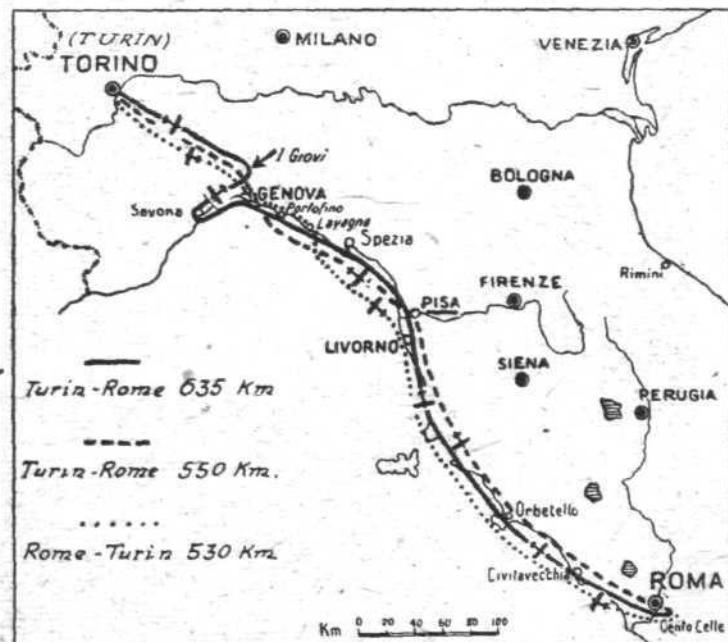
IT must be admitted that the aerial post arranged by the Italian Government between Turin and Rome has not fulfilled all the high expectations of the promoters, but it has nevertheless furnished valuable experience which will doubtless go to render other services and this particular service more successful in time. In a way it was unfortunate that the weather was very unfavourable, but on the other hand the fact that the atmospheric conditions were against flying emphasised the practical value of the experiment. The initial flight on May 22nd, it appears from an article in the *Rivista Mensile del Touring Club Italiano*, was started in a temporary calm which ensued on five days of heavy rain and storm. After rapid preparation and the stowing of the mail bags on board the aeroplane, Sig. Mario de Bernardi got away from the Pomilio aerodrome at Turin at 11.20. At a height of about 1,000 metres the heavy clouds overhanging the Apennines, quite cut off all view of the ground, and reliance had to be placed on the compass. Instead of Genoa, which is on the direct route to Rome, the pilot found himself over Savona, where he had to make a sharp turn to the left to get back to the coast at Genoa. From that point the weather grew worse and the remainder of the journey along the coast by Pisa and Livorno was made through heavy rain. Rome was reached safely, but in landing at the Centocelle aerodrome in a boisterous wind blowing 34 metres per second one wheel of the under-carriage was smashed. This accident prevented the return journey being attempted that day. The time for the journey of 635 kilometres, including the detour to Savona, was 4 hrs. 3 mins.

The second journey was made on May 26th, and this time the direct route was kept to. Once again atmospheric conditions were adverse, but the journey of 550 kilometres was made in 3 hrs. 15 mins., the

average speed therefore being about 170 kilometres per hour. The return journey to Turin was made on the following day.

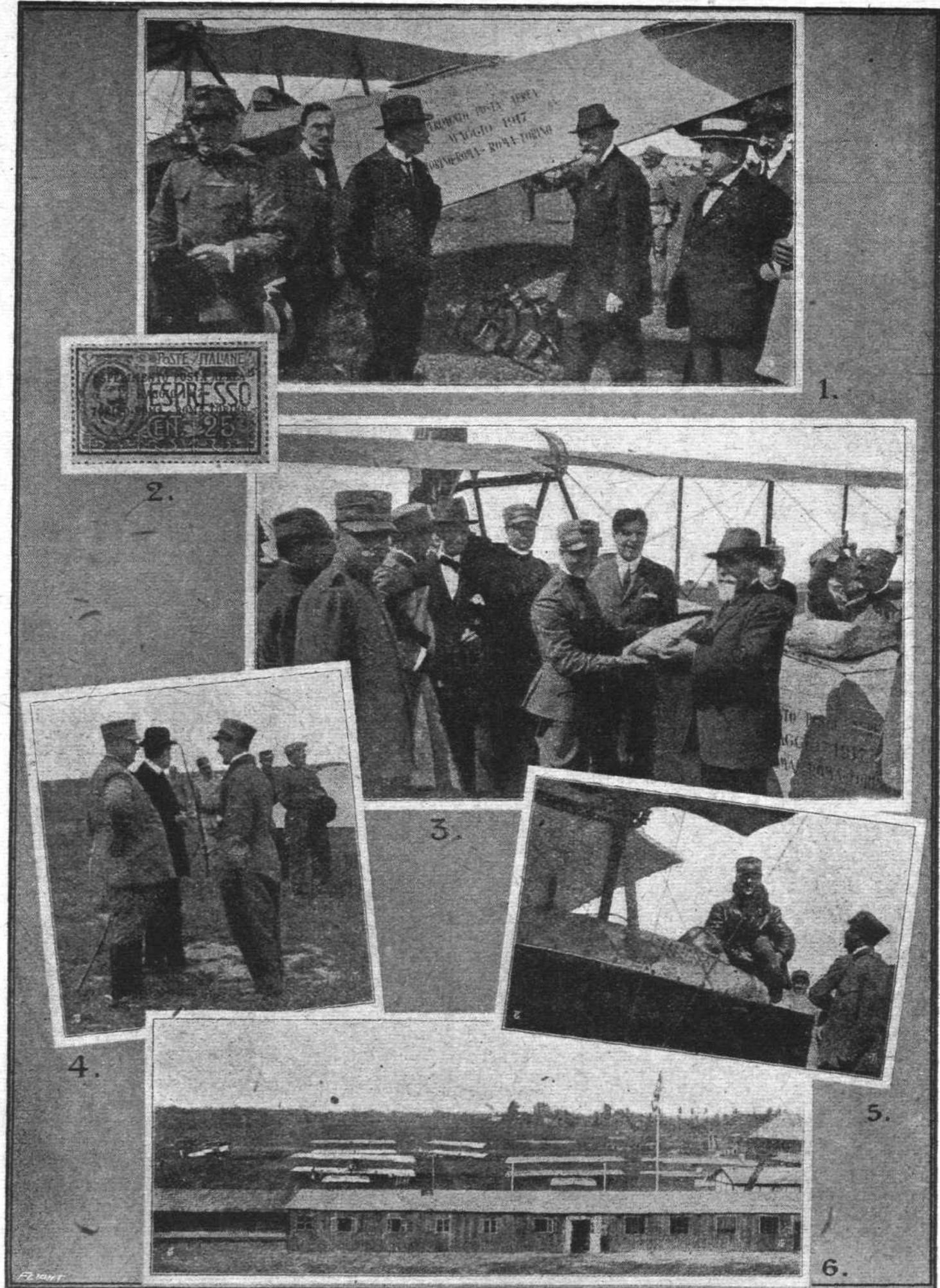
In some further notes on his journey published in the I.T.C. review, Sig. de Bernardi says that during his journey he used a sectional touring map with the route marked in blue pencil, but owing to the clouds obscuring the view, it was necessary to calculate distances by the speed of the machine.

The experiments, which were carried out by a special commission appointed by the Italian Ministry



Italian aerial post map, Turin-Rome.

of Posts, although they demonstrated the practicability of the scheme, showed clearly that for the present, at any rate, an aerial post greatly depended upon atmospheric conditions.



(By courtesy of the Rivista Mensile I.T.C.)

ITALIAN AERIAL POST.—1. Arrival at Rome ; on the ground, postal packets ; in centre (in civilian dress), General Marieni, General Director of Aviation. 2. A philatelic curiosity : one of the special stamps for the experimental aerial postal service. 3. Pilot de Bernardi hands over to the Postal Director of Rome packets of correspondence. 4. The Italian Minister of War, General Morrone, and Signor Rossi, Under Secretary of the State Post, discussing the journey with Pilot de Bernardi. 5. De Bernardi on arrival at Rome. 6. Pomilio Aerodrome at Turin, the starting point of the Turin-Rome aerial service (see page 831).

HONOURS.

Honours for the R.N.A.S.

THE following honours awarded to the R.N.A.S. were announced in the *London Gazette* on August 11th. :—

For services in action with enemy submarines :

Distinguished Service Cross.

Flight-Lt. W. R. MACKENZIE, R.N.A.S.

Bar to the D.S.C.

Flight Sub-Lt. R. F. L. DICKEY, D.S.C., R.N.A.S.

Distinguished Service Medal.

1st Grade Air-Mech. J. WATTS, O.N., F. 4923.

Actg. 1st Grade Air-Mech. E. E. HUGHES, O.N., F. 7223.

Mentioned in Despatches.

Flight-Comdr. J. G. STRUTHERS, R.N.A.S.

1st Grade Air-Mech. G. H. ELLIS, O.N., F. 3423.

Leading Mech. J. PARKES, O.N., F. 2859.

The King has been pleased to give orders for the appointment of the following officers :—

Distinguished Service Order.

Flight-Lt. R. A. LITTLE, D.S.C., R.N.A.S.—For gallantry in action and for exceptional skill and daring in aerial combats. Since May 9th, 1917, besides having driven off numerous artillery aeroplanes and damaged six hostile machines, he has destroyed six others. On June 26th, 1917, an Aviatik being seen from the aerodrome, he went up to attack it. He engaged it and fired a burst at close range, and the enemy machine stalled and went down in flames.

Flight-Lt. R. COLLISHAW, D.S.C., R.N.A.S.—For conspicuous bravery and skill in successfully leading attacks against hostile aircraft. Since June 10th, 1917, Flight-Lt. Collishaw has himself brought down four machines completely out of control and driven down two others with their planes shot away. Whilst on an offensive patrol on the morning of June 15th, 1917, he forced down a hostile scout in a nose dive. Later, on the same day, he drove down one hostile two-seater machine completely out of control, one hostile scout in a spin, and a third machine with two of its planes shot away. On June 24th, 1917, he engaged four enemy scouts, driving one down in a spin and another with two of its planes shot away; the latter machine was seen to crash.

Bar to the D.S.O.

Sqdrn.-Comdr. C. H. BUTLER, D.S.O., D.S.C., R.N.A.S.—For the skill and gallantry with which he attacked a formation of 15 hostile machines returning from a raid on England. Closing on one machine, he engaged it at close quarters. Presently he saw this machine nose dive, crash into the sea, and sink. Meanwhile he had engaged a second machine, but broke off the engagement to follow down the first machine. Afterwards he lost sight of the enemy formation and returned to his aerodrome.

The King has been pleased to approve of the award of the Distinguished Service Cross to the following officers :—

Flight-Comdr. A. M. SHOOK, R.N.A.S.

Flight-Lt. A. J. CHADWICK, R.N.A.S. (since reported drowned).

Flight Sub-Lt. A. J. ENSTONE, R.N.A.S.

Flight Sub-Lt. L. F. W. SMITH, R.N.A.S. (since missing).

For exceptional gallantry and remarkable skill and courage whilst serving with the R.N.A.S. at Dunkirk during May and June, in repeatedly attacking and destroying hostile aircraft.

Flight-Lt. C. H. DARLEY, R.N.A.S.—For conspicuous skill and gallantry on the night of July 2nd. One of his engines having seized whilst he was over Bruges, he dropped his bombs on the objective and managed to fly his machine home on one engine and effected a safe landing on the aerodrome.

Flight Sub-Lt. (now Flight-Lt.) J. E. SCOTT, R.N.A.S.—For the skill and gallantry with which he engaged a hostile machine returning from an air raid on England. Descending to 8,000 ft., he fired continuously until the enemy machine lost control, descended in a spinning nose dive, and crashed into the sea.

Flight Sub-Lt. E. V. REED, R.N.A.S. (since missing).—In recognition of his services on the following occasions :—On June 6th he attacked and drove down one of four hostile scouts. This machine dived nose first into the ground and was destroyed. On the afternoon of June 15th he was leading a patrol of three scouts and encountered a formation of 10 enemy machines. During the combat which ensued he forced one machine down completely out of control. Next he attacked at a range of about 30 yards another hostile scout. The pilot of this machine was killed, and it went down completely out of control. This officer has at all times shown the greatest bravery and determination.

Flight Sub-Lt. E. R. BARKER, R.N.A.S.—In recognition of his services on the occasion of an air raid on the Solway works at Zeebrugge on the night of July 15th-16th, when bombs were dropped on the objective with good results.

Flight Sub-Lt. R. H. DALY, R.N.A.S.—For skill and gallantry in attacking enemy aircraft returning from a raid on England. After a long chase he engaged and brought down one machine in flames. Afterwards he engaged a second machine, but his gun jammed, and, though he continued the pursuit to the enemy coast, he failed to clear the jam, and was obliged to return to his aerodrome.

Flight-Lt. R. R. SOAR, R.N.A.S.—Four courage and skill as a scout pilot. On May 23rd, 1917, he attacked a two-seater artillery machine, and as the result of a well thought out attack brought the machine down out of control. On June 12th, 1917, he brought down two enemy machines out of control. On June 29th, 1917, in company with Flight-Lt. Little, he attacked and brought down an Albatros scout. On July 3rd, 1917, whilst leading an offensive patrol, a formation of seven Albatros scouts was engaged, and he brought down one out of control. On July 13th, 1917, in company with Flight-Lt. Little, he attacked and drove down out of control one two-seater machine, following it down to within 1,000 ft. of the ground.

Bar to the D.S.C.

Flight-Comdr. R. J. O. COMPSTON, D.S.C., R.N.A.S.—For gallantry in action and for very good work in driving away German artillery aeroplanes. On June 12th, 1917, with three other machines, he attacked six hostile scouts. He got close to one, and shot it down out of control. On June 16th, 1917, he attacked two Aviatiks, which he drove down and forced to land.

Flight-Lt. J. E. SHARMAN, D.S.C., R.N.A.S.—For courage and skill in attacking enemy aircraft. On the evening of June 14th, 1917, while on an offensive patrol with three other scouts, he observed five Albatros scouts. He dived on one of these, firing from his machine gun at about 50 ft. range. The scout then went down in a spin. On June 24th, with six other machines, he attacked 15 Albatros scouts. After a combat at close range he destroyed one of these, its right plane and tail plane falling off.

The following awards have also been approved :—

Distinguished Service Medal.

Ldg. A.C. T. BUSBY, O.N. F. 18555; A.C., 1st Grade, J. H. DAW, O.N. F. 12687; A.C., 2nd Grade, C. A. MILLHOUSE, O.N. F. 22637; Air-Mech., 2nd Grade, F. ANDERSON, O.N. F. 7389; Air-Mech., 1st Grade, T. CAIRD, O.N. F. 6181; P.O. Mech. (E.) H. DIXON, O.N. F. 4542.

The following officers and men have been mentioned in Despatches :—

Sqdrn.-Comdr. R. H. MULOCK, D.S.O., R.N.A.S.; Flight-Lt. W. R. MACKENZIE, D.S.C., R.N.A.S.; Flight Sub-Lt. R. F. L. DICKEY, D.S.C., R.N.A.S.; Flight Sub-Lt. F. R. JOHNSON, R.N.A.S.; Flight Sub-Lt. A. H. LOFT, R.N.A.S.; A.C., 2nd Grade, J. W. GEORGE, O.N. F. 20006.

Foreign Honours for R.N.A.S.

IT was announced on Saturday that the President of the French Republic has conferred the following honours for distinguished services rendered during the war :—

Legion of Honour.

Commander.—Rear Adm. C. L. VAUGHAN-LEE, C.B.; Capt. G. M. PAYNE, C.B., M.V.O., R.N., Commodore, 1st Class.

Officer.—Capt. A. V. VYVYAN, D.S.O., R.N.; Wing Capt. R. M. GROVES, D.S.O., R.N.; Wing Cmdr. I. T. COURTNEY, R.N.A.S. (Capt. and Temp. Lt.-Col., M.R.L.I.).

The King of Italy has conferred the following decorations :

Order of St. Maurice and St. Lazarus.

Commander.—Rear-Admiral C. L. VAUGHAN-LEE, C.B.

Officer.—Comdr. C. R. DANE, R.N. (Wing Comdr., R.N.A.S.).

Cavalier.—Flight Comdr. D. HARRIES, R.N.; Flight Comdr. D. W. A. BARTON, R.N.A.S.; Flight Comdr. F. W. LUCAS, R.N.A.S.

Order of the Crown of Italy.

Officer.—Comdr. H. L. WOODCOCK, N.R. (Wing Comdr., R.N.A.S.).

Cavalier.—Flight-Lieut. R. F. E. WICKHAM, R.N.A.S.; Flight-Lt. R. F. MAITLAND, R.N.A.S.

Honours for the R.F.C.

IT was announced in the *London Gazette* on August 8th that the King has been pleased to approve of the following

rewards for distinguished service in the field, dated June 3rd:—

Awarded Bar to the D.S.O.

Major A. J. Ross, D.S.O., R.E., and R.F.C.

Awarded the Military Cross.

Lt. E. A. FLOYER, I.A. Res. of Of., and R.F.C.

Lt. T. HENDERSON, R.E., and R.F.C.

Capt. T. W. MULCAHY-MORGAN, R. Irish F., and R.F.C.

2nd Lt. W. G. STAFFORD, Gen. List and R.F.C.

2nd Lt. (Temp. Lt.) D. N. THOMSON, Yeo., and R.F.C.

A Canadian V.C.

It was announced on August 12th that the King had awarded the Victoria Cross to the undermentioned officer: Capt. W. A. BISHOP, D.S.O., M.C., Canadian Cavalry and R.F.C., for most conspicuous bravery, determination and skill. Capt. Bishop, who had been sent out to work independently, flew first of all to an enemy aerodrome; finding

no machine about, he flew on to another aerodrome about three miles south-east, which was at least twelve miles the other side of the line. Seven machines, some with their engines running, were on the ground. He attacked these from about 50 ft., and a mechanic, who was starting one of the engines, was seen to fall. One of the machines got off the ground, but at a height of 60 ft. Capt. Bishop fired 15 rounds into it at very close range, and it crashed to the ground. A second machine got off the ground, into which he fired 30 rounds at 150 yards' range, and it fell into a tree. Two more machines then rose from the aerodrome. One of these he engaged at the height of 1,000 ft., emptying the rest of his drum of ammunition. This machine crashed 300 yards from the aerodrome, after which Capt. Bishop emptied a whole drum into the fourth hostile machine and then flew back to his station. Four hostile scouts were about 1,000 ft. above him for about a mile of his return journey, but they would not attack. His machine was very badly shot about by machine-gun fire from the ground.



"X" AIRCRAFT RAIDS.

IN view of the decision of the Government not to allow details of places visited by enemy aircraft to be published, we are, as before, giving to each one an index number. Eventually, when details are available, we shall give the respective information under these index numbers, which will facilitate easy reference to each particular raid.

"X" 68 Raid (August 12th).

THE following *communiqué* was issued by the Field-Marshal Commanding-in-Chief, Home Forces, on August 12th:—

" 7.40 p.m.

" At about 5.15 p.m. this afternoon a squadron of about 20 enemy aeroplanes were reported off Felixstowe.

" They skirted the coast to Clacton, where they apparently divided, part going south, towards Margate.

" The remainder crossed the coast and went south-west towards Wickford, near which place they turned south-east, and dropped bombs in the neighbourhood of Southend. Some bombs were also dropped at Margate.

" No reports of damage or casualties have yet been received.

" Our own aircraft were very quickly in the air, and pursued the enemy out to sea."

" 11 p.m.

" The enemy raiders did considerable damage at Southend, where they dropped about 40 bombs.

" The casualties so far reported are:—

" Eight men, nine women, and six children killed.

" About 50 people injured.

" At Rochford two men were injured, but no damage is so far reported.

" At Margate four bombs were dropped and one uninhabited house was demolished, but no casualties occurred."

" Admiralty, August 13th, 1.10 p.m.

" One hostile aeroplane, Gotha type, was destroyed during the return of the raiders to the Belgian coast, and one hostile seaplane was destroyed off the coast of Flanders at approximately the same time. A large number of R.N.A.S. machines engaged the other raiders overseas, without decisive result. The pilot who destroyed the Gotha, and who was flying a land machine, reports he first pursued an enemy aeroplane



Nocturnal Hun Visitors.

WRITING from France to the *Daily Telegraph* on August 10th, Mr. Philip Gibbs says:—

" There is nothing to complain about now in the weather except its uncertainty, and the visibility is marvellous below a rain-swept sky, so the airmen are out again in flocks, and there has been great fighting up above. Yesterday I saw our machines flying over the enemy's lines in the usual way with German shrapnel about their wings, but searched in vain for any enemy to challenge them. The duels that took place were well away in the enemy's part of the sky, though the night before I heard hostile planes overhead on our side of the lines. Some German fellow had taken advantage of the moon and the bright starlight to come raiding over Flemish villages—and the song of his engine was soon overwhelmed by big explosions as he scattered his bombs over sleeping farmsteads, and then by the barking of all our 'Archies,' aroused like watchdogs by the robber. Their flashes winked and blinked from the black fields of the night where the corn is in

flying at 12,000 ft. from the North Foreland to about 15 miles off Zeebrugge, where he lost the hostile aircraft. Returning to the mouth of the Thames he observed anti-aircraft fire bursting in the vicinity of Southend, and flew in that direction, climbing. He then observed eight Gotha aeroplanes, followed by four British machines, steering north-east. The enemy machines were about 2,000 ft. above him when he got beneath them; he pursued, climbing to 18,000 ft., and attacked without result when about 30 miles out to seaward. At this moment he saw a single hostile machine 4,000 ft. below the enemy formation, but flying with it. He attacked from the front and drove the enemy down to the water, where he observed him turn over, and saw one of the occupants hanging on to the tail. Thereupon, he threw him his lifebelt, and did two or three circuits round him before returning to England. While returning he endeavoured to communicate the position of the hostile machine to British destroyers."

" Press Bureau, August 13th, 8.20 p.m.

" The Press Bureau is informed that reports of pilots show conclusively that the enemy aircraft formation which attacked this country yesterday was making for London. On sighting the large number of our aeroplanes which were sent up against them they turned abruptly and made the best of their way out to sea again, dropping some bombs in Southend and unloading the rest when out at sea. The action of the anti-aircraft guns was of great assistance to our fighting squadrons."

" Press Bureau, August 13th, 11 p.m.

" The Press Bureau is informed that the casualties occasioned at Southend by Sunday's aeroplane raid have been finally established to be as follows:—

" Killed: Men, 10; women, 13; children, 9. Total, 32.

" Injured: Men, 13; women, 18; children, 12. Total, 43."

German Version.

" Berlin, August 13th.

" One of our aviation squadrons yesterday attacked England. Bombs were dropped, with visibly good results, on the military works of Southend and Margate, at the mouth of the Thames. One of our aeroplanes is missing."



stooks. We do not see German airmen very often overhead, but they guard their own ground in strong numbers and lie in wait like packs of wolves for any lonely fellow of ours who gets separated from his fellows or flies out singly for reconnaissance or a fight."

The Biter Bit.

THE *Telegraaf* gives interesting details of a little comedy which recently took place within Dutch territorial waters. While a fishing boat, which had two Belgian pilots on board, was fishing near West Kapelle, a German seaplane landed alongside, placed a N.C.O. on board, and ordered the boat to Zeebrugge. The Belgian pilots, however, sighted the Dutch patrol vessel "Donau," and tried to get near her. In the excitement probably of endeavouring to frustrate this manoeuvre the pilot of the seaplane lost control of his machine which dropped into the sea. The Dutch vessel took the fishing boat to Flushing, and the German "prize-crew" is to be interned.

THE ROLL OF HONOUR.

REPORTED by the Admiralty:—

Killed.

Acting Flight-Commander F. D. Casey, D.S.C., R.N.

Accidentally Killed.

Squadron Commander E. H. Dunning, D.S.C., R.N.

Previously reported Missing, now reported Killed.

Midshipman J. R. Barry, R.N.R.

Flight-Lieut. (Acting Lieut., R.N.R.) W. H. Richardson, R.N.

Previously reported Missing, believed Killed,
now presumed Drowned.

Acting Flight Commander A. J. Chadwick, D.S.C., R.N.

Previously reported Missing, now presumed Killed.

Flight-Lieut. W. H. Peberdy, R.N.

Missing, believed Killed.

Flight Sub-Lieut. M. G. Woodhouse, R.N.

Slightly Injured.

Flight Commander G. V. Leather, R.N.

Prob. Flight Officer H. R. Mayes, R.N.

Missing.

Flight Sub-Lieut. B. H. Bridge, R.N.

Flight Sub-Lieut. K. R. Munro, R.N.

Reported by the War Office:—

Killed.

Major O. M. Conran, R. Lanc., attd. R.F.C.

Lieut. G. F. Dracup, Cent. Ont., attd. R.F.C.

2nd Lieut. W. W. Fitzgerald, R.F.C.

2nd Lieut. W. L. Lovell, R.W. Kent, attd. R.F.C.

Lieut. H. Mitten, R.F.A., attd. R.F.C.

Lieut. N. M. Pizey, Yeo, and R.F.C.

2nd Lieut. N. R. Rayner, W. Yorks., attd. R.F.C.

2nd Lieut. P. J. Rodocanachi, R.F.C.

Lieut. S. R. P. Walter, R.W. Surrey, attd. R.F.C.

46685 Corp. S. Brett, R.F.C.

51128 2nd Air-Mech. F. Burlinson, R.F.C.

56486 2nd Air-Mech. J. Mex, R.F.C.

5083 1st Air-Mech. R. Shaw, R.F.C.

Accidentally Killed.

Lieut. L. Michener, Can. Eng., attd. R.F.C.

Lieut. R. C. Trout, Aus. F.C.

Died of Wounds.

Lieut. R. A. Airth, Bedford, attd. R.F.C.

2nd Lieut. H. A. Hope, R.F.C.

2nd Lieut. A. J. L. O'Beirne, Yeo, and R.F.C.

Capt. G. C. Smith, M.C., A.S.C., attd. R.F.C.

Previously reported Wounded, now reported

Died of Wounds.

C/9018 2nd Air-Mech. C. B. Thomas, R.F.C.

Previously reported Missing, now reported Killed.

Lieut. W. L. Mills, R.F.A., attd. R.F.C.

2nd Lieut. A. G. Severs, R.F.C.

2nd Lieut. M. Sharpe, R.F.C.

Lieut. M. W. Thomas, R.F.A., attd. R.F.C.

2nd Lieut. M. Topham, R.F.C.

Previously reported Missing, now reported

Died of Wounds.

Capt. A. M. Lowery, R.F.C.

Lieut. G. W. Swann, A.S.C., attd. R.F.C.

Previously reported Missing, believed Killed, now reported Died of Wounds as Prisoner of War in
in Turkish hands.

2nd Lieut. N. L. Steele, Aus.F.C.

Died.

2nd Lieut. M. C. Crerar, R.F.A., attd. R.F.C.

36478 2nd Air-Mech. W. McVie, R.F.C.

Previously reported Killed, now reported
Died as Prisoner in German hands.

Lieut. R. G. Masson, E. Ont., attd. R.F.C.

Wounded.

2nd Lieut. F. P. Blencowe, S. Staffs., attd. R.F.C.

Lieut. A. F. Britton, M.G.C., attd. R.F.C.

2nd Lieut. H. K. Budgen, S. Wales B., attd. R.F.C.

2nd Lieut. G. T. W. Burkett, R.F.C.

Capt. W. C. Campbell, D.S.O., M.C., R.F.C.

2nd Lieut. J. S. Cassels, M.C., R. Sussex, attd. R.F.C.

2nd Lieut. O. Clayton, R.F.C.

2nd Lieut. L. Collier, Som. L.I., attd. R.F.C.

Capt. A. Coningham, R.F.C.

2nd Lieut. H. Cresswell, R.F.C.

2nd Lieut. R. N. D'O. Earwaker, Manchester and R.F.C.

2nd Lieut. J. G. Foden, R.F.C.

2nd Lieut. G. N. Goldie, R.F.C.

2nd Lieut. A. W. Gordon, R.F.C.

2nd Lieut. C. J. L. Harrison, Worc. and R.F.C.

2nd Lieut. W. H. Howes, R.F.C.

Lieut. J. L. M. de C. Hughes-Chamberlain, Suff., attd.

R.F.C.

2nd Lieut. A. C. S. Irwin, R. Irish, attd. R.F.C.

Lieut. H. N. James, Manch., attd. R.F.C.

2nd Lieut. W. D. Kennard, London and R.F.C.

Capt. G. A. Lascelles, R.F.C.

2nd Lieut. T. A. M. S. Lewis, R.F.C.

2nd Lieut. J. C. Luke, M.C., R.E., attd. R.F.C.

Lieut. M. McCall, R. Scots, and R.F.C.

2nd Lieut. C. C. Marsden, R.F.C.

Lieut. V. C. Roberts, N'land, F., attd. R.F.C.

2nd Lieut. H. St. C. Roy, M.C., R. Innis, F., attd. R.F.C.

Lieut. H. J. Snowden, S. Lancs., attd. R.F.C.

2nd Lieut. St. C. C. Tayler, R. Suss., attd. R.F.C.

2nd Lieut. H. F. Taylor, Aus. F.C.

2nd Lieut. A. E. Turner, M.C., R. Warwick, attd. R.F.C.

2nd Lieut. N. L. Watt, Cav. Spec. Res., attd. R.F.C.

2nd Lieut. G. R. Willis, S. Lancs., attd. R.F.C.

2nd Lieut. A. E. Woodbridge, R.F.C.

Missing.

2nd Lieut. B. C. Beatty, R.F.C.

Lieut. C. H. Beldam, Cambs. and R.F.C.

Lieut. F. B. Best, A.S.C. and R.F.C.

2nd Lieut. G. B. Buxton, Norf. and R.F.C.

2nd Lieut. J. K. Cambell, R.F.C.

2nd Lieut. T. L. Carson, R.F.C.

2nd Lieut. J. Chapman, High. L.I., attd. R.F.C.

2nd Lieut. R. H. Corbishley, Devon R., attd. R.F.C.

2nd Lieut. W. H. Gunner, M.C., R.F.C.

2nd Lieut. J. B. Hine, R.F.C.

2nd Lieut. R. C. Hume, R.F.C.

2nd Lieut. W. B. Kellog, R.F.C.

2nd Lieut. S. J. Leete, Worc. R. and R.F.C.

Lieut. J. Longton, A.S.C., attd. R.F.C.

Lieut. W. B. Mackay, Cent. Ont., attd. R.F.C.

Lieut. H. O. McDonald, R.F.C.

2nd Lieut. L. A. McPherson, R.F.C.

Lieut. C. Malloch, E. Ont., attd. R.F.C.

Capt. L. Minot, R.F.C.

Lieut. H. G. Nickalls, Yeo, and R.F.C.

2nd Lieut. R. G. Ottey, Leic., attd. R.F.C.

Lieut. H. W. B. Rickards, R.F.A., attd. R.F.C.

Lieut. W. M. Roskelly, R.F.C.

2nn Lieut. H. N. S. Skeffington, R.F.C.

2nd Lieut. J. C. Smith, R. War., attd. R.F.C.

Lieut. G. H. Walker, S. Lan., attd. R.F.C.

2nd Lieut. W. H. Watt, Ches. R., attd. R.F.C.

2nd Lieut. T. W. White, R.F.C.

Capt. H. O. D., Wilkins, Bedf., attd. R.F.C.

Previously Missing, now reported Prisoners
in German hands.

2nd Lieut. L. G. Bacon, R.F.C.

2nd Lieut. F. V. Durkin, Worc. R. and R.F.C.

2nd Lieut. H. G. Spearpoint, R.F.C.

Previously reported Missing, now reported Wounded
and Prisoners of War in German hands.

Lieut. V. Smith, North'd F., attd. R.F.C.

2nd Lieut. J. D. M. Stewart, R.F.C.

Previously reported Prisoners, now reported
Wounded and Prisoners in German hands.

2nd Lieut. A. E. Crisp, Norf. and R.F.C.

2nd Lieut. K. R. Furniss, Yeomanry and R.F.C.

2nd Lieut. W. Gilchrist, Rif. Brig., attd. R.F.C.

2nd Lieut. L. Holman, Hussars, attd. R.F.C.

2nd Lieut. F. W. Illingworth, Cam. (Sco. Rif.), attd. R.F.C.

Correction : Reported Missing.

Lieut. W. A. Bond, M.C., K.O.Y.L.I., attd. R.F.C., should
read—Capt. W. A. Bond, M.C., K.O.Y.L.I., attd.
R.F.C.



The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Club House.

The following prices have been fixed for the present by the Committee:—

Bedroom (including Bath)	5s. each per night.
Breakfast	2s. 6d.
House Luncheon	2s. 6d.
House Dinner	3s. 6d.

Billiard Room.

The Billiard Room is now open for the use of the Members.

THE FLYING SERVICES FUND
administered by

THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are

incapacitated on active service, and for the widows and dependants of those who are killed.

The fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 3, Clifford Street, New Bond Street, London, W. 1.

Subscriptions.

	£	s.	d.
Total subscriptions received to August 7th, 1917	11.	868	2 2
Collected by the Rev. Henry Dalzell, M.A., of H.M.S. "Cormorant," on behalf of			
Gibraltar R.N. Hospital Chapel Offertories	5	5	0
Staff and Workers of Gwynnes, Ltd. (Forty- fourth contribution)	9	12	8
Total, August 14th, 1917	11.	882	19 10
H. E. PERRIN, Secretary.			
3, Clifford Street, New Bond Street, W. 1.			



[As a number of letters reach us signed with initials only, some of which do not give a complete address, we would point out that such communications cannot be dealt with in our columns. Full name and address, which will not be published, must always be given.—ED.]

Notice to Correspondents in General.

Applications for commissions in the Royal Naval Air Service should be addressed to the Director of Air Services, Admiralty, S.W. The necessary form and conditions of entry can be obtained from the Secretary of the Admiralty.

Applications for commissions in the Royal Flying Corps should be sent to the Director-General of Military Aeronautics, Hotel Cecil, Strand, W.C.

Those who wish to enlist in the R.N.A.S. should apply to the nearest naval recruiting station or to the R.N.A.S. Drafting Office, Crystal Palace, S.E. Skilled mechanics are taken whatever their army classification, but unskilled men are only taken if they are classified B1, B2, or C1.

Recruiting for the R.F.C. is closed for the time being, and any enquiries should be made to the Officer Commanding, Royal Flying Corps Depôt, Farnborough.

Enquiries with regard to appointments in the A.I.D. should be addressed to the Chief Inspector, Aeronautical Inspection Department, Hotel Cecil, W.C. 2.

L. R. (B.E.F.).—The problem as to what would happen to an aeroplane travelling at a speed of 60 m.p.h. against a wind of the same velocity, the machine thus having no velocity in relation to the ground, if the wind and engine were stopped at the same instant, is quite an old friend, a great amount of correspondence concerning this subject having been published in our columns during the months October-December, 1912. There, as in the mess you refer to, opinions were about evenly divided as to whether the aeroplane in question possessed or did not possess momentum. In the past it has always been customary to consider the momentum of any body with relation to the ground, and the fact that this is so is evidenced by the definition of momentum: mass \times velocity. Mass is a function of gravity, and velocity was, in the days when Newton formulated his laws of motion, naturally considered in regard to the earth, if the body was moving on or near the surface of the earth. As the aeroplane is stationary in relation to the earth it cannot, therefore, be said to have momentum since one of the factors (velocity) is missing from the equation for momentum. There cannot be any doubt, at any rate in our opinion, that your statement of the facts is the correct one. The aeroplane is obviously to be considered as a body acted on by four forces: (1) A horizontal force equal to the resistance of the air, (2) a horizontal force equal and opposite to (1) produced by the thrust of the

air screw, (3) an upward vertical force formed by the lift of the wings, and (4) a downward vertical force equal to the weight of the aeroplane. If the machine is travelling along a horizontal flight path (3) is obviously equal to (4). In the hypothetical case under consideration what happens is this: The two horizontal and opposed forces—the resistance and the thrust—cease simultaneously, and as the lift is a function of these two forces it also ceases. The aeroplane is then only acted on by one force, gravity, represented by the weight of the machine. It will, therefore, begin to drop and, gradually getting its nose down, will commence a glide.

N. E. G. (Paris).—The reasons for staggering the planes of a biplane, as you are probably aware, are that this has been found to give slightly greater efficiency, and it is employed chiefly because in this manner a better view is obtained. The question regarding the amount of stagger in a machine with comparatively small gap can hardly be answered in a general way, since it will depend upon what the designer was aiming at. Practical considerations might make it desirable to keep the gap small, and the stagger might possibly be made large to compensate to a certain extent, for the lower efficiency caused by the smaller gap. On the other hand, a large stagger might be deemed advisable for other than aerodynamic reasons. Probably the designer was influenced by both considerations. On slower machines the reasons for not employing the stagger were probably that in a slow machine the resistance due to longer struts was not so important, while staggering tends to complicate the stresses in the wings. As regards the rearward stagger, this has been found by experiment to give a slightly lower efficiency than the vertical placing, although the difference does not appear to be very great. In the machine you refer to the rearward stagger was chosen for certain practical reasons. There have been several "pusher" biplanes with staggered wings, and when this arrangement is not more often found on this type of machine it is chiefly due to structural difficulties. Also, it is difficult to get the balance right without cutting away a large portion of the trailing edge of the bottom plane in order to provide clearance for the screw.

A. J. F. (Wounded).—The gas usually employed in airships is hydrogen, which has a lifting capacity of approximately 70 lbs. per 1,000 cubic ft. This figure will vary according to the density of the air and the quality of the hydrogen. Coal gas is sometimes used in balloons, but as its lifting power is very considerably smaller than that of hydrogen, being approximately only half, or about 35 lbs. per 1,000 cubic ft., it is not generally used in airships. The envelope is generally made of two plies of cotton cloth with a layer of rubber between them.

THE PARACHUTE UP-TO-DATE.

CHRONOLOGICALLY speaking the parachute is the pioneer type of aircraft, being generally acknowledged to have antedated the invention of the balloon. It is on record that several hundred years ago, Siamese royalty were entertained by an inventor who made leaps from great heights with parachutes attached to his body. That versatile Italian, Leonardo da Vinci, who appears to have anticipated a great many modern "inventions," described a parachute as long ago as 1514, but so far as can be ascertained, the first authentic practical demonstration of the utility of the parachute was made by a Frenchman, M. Lenormand, at Lyons, in 1783. This inventor suggested the parachute as a means of descending from the upper parts of a burning house, and actually succeeded in making a safe descent from the top of a building in Lyons. In 1783, the aeronaut Blanchard conceived the idea of using the parachute in ballooning, and first tested one by attaching it to a basket in which was placed a dog. The descent was made safely, but when Blanchard tried the experiment himself, although the fall was certainly very much retarded, he sustained a broken leg. This happened in 1793. On October 22nd, 1797, M. Garnerin made a very successful parachute jump from a balloon at an altitude of over a mile. With this famous descent it may be said that the parachute was fairly established as a means of checking the speed of a free fall from a height, and has been employed in this manner for a variety of purposes since that date.

Fundamentally, there is no very great danger attending the descent in a parachute, provided the first essential condition is satisfied, *i.e.*, that the parachute opens. Unfortunately, there is, or rather, there was, always the possibility that the many cords which support the parachutist from the periphery of the parachute may become entangled and prevent it from opening. More than one life has been lost in this manner, and this uncertainty has, without doubt, been largely responsible for the suspicion with which many, one might perhaps be permitted to say most, modern aviators regard the parachute. In times of peace, when the possibility of breakage in the air is remote, it has been rightly argued that in most cases the aeroplane itself would form the best parachute the pilot could possibly have, as it is superior to the parachute in that it may be steered in any direction, thus enabling the pilot to choose a suitable landing ground, whereas in the parachute he must perforce go whither the wind chooses to send him. In times of war, however, it is unfortunately no infrequent occurrence that an aeroplane gets so badly damaged by gun fire that a portion of it, such as a wing or a tail boom, breaks away. Marvellous escapes in such cases are on record, but, generally speaking, it means certain death for the unfortunate pilot. It is quite obvious that if a parachute can be made which is absolutely certain to open when required to do so, and can be made to leave the aeroplane without catching anywhere, and tearing itself to pieces, an opportunity to save himself has been afforded to the pilot of a broken machine. Of what has been done in the way of parachute descents from aircraft during the war it is not, of course, possible to speak at present, but previous to the outbreak of war it may be remembered that Pegoud jumped out from an aeroplane with a parachute attached to his body and landed safely, the Blériot monoplane on which he made the experiment landing itself in a practically undamaged condition near by. In this country the parachute jump from an aeroplane was first made from a Grahame-White biplane by Mr. Newall, who was seated on one of the chassis skids. It may still be remembered how the parachutist continued to postpone the jump until the late Major Goodden, who was himself an experienced parachutist, became impatient, and, climbing out on one of the wings of the aeroplane, kicked his passenger into space. The landing was effected without a hitch, and thus ended the first parachute jump from an aeroplane in England.

With the extensive employment of airships, kite balloons, and spherical balloons, the parachute has become a necessary accessory, and its usefulness for these purposes is probably established beyond question. Slower, considerably slower, has been its adoption for use on aeroplanes. This is probably partly due to prejudice, created by the erratic and uncertain behaviour of the old-fashioned parachute, and partly to the inherent difficulty of successfully launching it from such a fast moving vehicle as an aeroplane. In the first place, the parachute must be so placed in the aeroplane that if anything goes wrong with the machine, the pilot has but to release his safety belt and jump overboard, and the parachute will release itself from the machine and open in a minimum of time so as to reduce the length of "free fall" experienced by the pilot. Secondly, the possibility of the parachute opening before it is clear of the machine, and, therefore, likely to be

blown back and catching in the tail planes or tail skid, must be absolutely eliminated. Finally, on reaching the ground the pilot must be able to detach himself instantly from the parachute, so as to avoid being dragged along the ground and through ditches, hedges, &c.

From a visit to the premises of Messrs. E. R. Calthrop's Aerial Patents, Ltd., at Eldon Street, in the City, we have received the impression that all these desiderata have been attained in the latest type parachute designed by this firm. It is now a good many years since Mr. Calthrop commenced his experiments on parachutes, and if he has at last succeeded in turning what was once a very erratic craft of the air into a machine designed to perform a given function with certainty, and no others, it is only after endless experimenting and improving upon improvements, that he has now succeeded we firmly believe, and so far as we are able to judge, there is none of the old-time shut-your-eyes-hold-your-breath-jump-and-see-what-happens uncertainty about the Calthrop parachute.

Under present conditions, it would obviously be grossly indiscreet were we to give a detailed description of the Calthrop parachute, but a brief outline of what the parachute is claimed to do, and does, as evidenced by the series of moving pictures shown us, may be permissible. The chief advantage of the Calthrop parachute lies in the ingenious method by which it is released from the craft supporting it. This is at once simple and effective, with no possibility of getting out of order. A pull of given magnitude, furnished by the weight of the parachutist, releases it from its anchorage, and as soon as the supporting tapes are taut the parachute opens and sustains the pilot. The method of folding the rigging has been very carefully thought out, and the result is that, instead of tumbling out in a bunch with the attendant possibility of becoming entangled, the rigging is unfolded gradually, so that each of the strands is taut and straight for the portion of it that is at that moment outside the covering. The pleating and folding of the parachute body itself is carried out in a way that has been found by experience to give the least amount of friction between adjacent folds during the process of opening.

Incorporated in the rigging is a shock absorbing device which has been found to be so effective that the pilot did not experience any sudden jerk whatever when the full weight of his body was taken by the parachute. From a series of very interesting films it appeared that the longest time taken for the parachute to open after the pilot had jumped from the aeroplane was 2½ seconds, the time taken depending, apparently, upon the speed of the aeroplane, the quickest opening occurring with the fast machine and the slowest with a slower machine. As regards the altitude from which it is safe to jump, Mr. Calthrop advocates 200 ft. as the minimum, although we witnessed a film, showing a jump from only just over 100 ft., in which the pilot was being supported by the parachute while still a matter of some 20 or 30 ft. from the ground. The quick release by means of which the pilot detaches himself from the parachute on landing is of the very simplest type, and its effectiveness was clearly demonstrated in one of the films, which showed that the pilot got into an air current when only a few feet from the ground, the parachute trailing out at what appeared to be a very dangerous angle. However, by releasing himself just before striking, he landed safely, and the parachute came to rest as soon as released of the weight of the pilot. That this is a necessary precaution was illustrated in another film, in which the weight was in the form of a sand bag. A fresh breeze was blowing, and the bag trailed along a considerable distance before the attendants were able to capture the parachute.

Air and water-tight covers protect the parachute when not in use, and absolutely prevent it from getting damp. To ensure that nothing is tampered with in transit, the parachute is packed by the makers in a strong wooden box, which is then sealed, a card of instructions for use being tacked inside the lid of the box, to be carefully read before touching anything of the contents, which is all arranged according to the makers' system, even to the pilot's harness. Certainly, if careful design and painstaking workmanship count for anything, the Calthrop parachute is as near perfection as it is possible to get it, and the fact that a perusal of the, unfortunately, only too frequent accidents to aviators would indicate that a very great percentage of these pilots might have been saved had they been equipped with a reliable parachute, is a very strong point in favour of a more general adoption of this useful "accessory." We do not doubt that there are a good many people who shrug their shoulders at the idea of a parachute on board an aeroplane. We were inclined to do the same—until we saw Mr. Calthrop's "Guardian Angel."

THEORY OF PRESSURE ON A PLANE SURFACE DUE TO RELATIVE WIND.

By A. E. WATSON.

(Concluded from page 816.)

To find the pressure on the back of the element K it should be noted that the plane is moving away from the incident streams. Thus streams which, when the plane is at rest, are incident with normal velocity components less than v , are unable to overtake the plane when it is moving with velocity v . These streams correspond to the zone DMNF. There is thus a corresponding decrease in the number of impacts in unit time, with corresponding decrease in effective density of incident streams, and therefore also of actual density in the immediate vicinity of the back of the element in the ratio $\frac{\text{surface MRN}}{\text{surface DRF}} = \frac{V-v}{V}$.

A limit is reached when $v = V$. At this value the region in the immediate vicinity of the back of the element becomes vacuous, and remains vacuous for all values of v higher than V . It will be seen that the surface MRN has the same significance with respect to the pressure on the back of the element K as the surface MEN has with respect to the pressure on the front of the element. The pressure on the back is therefore obtained from (8) by integrating between limits corresponding to the surface MRN.

It is convenient to work in terms of a . From the triangle GCK we have

$$V^2 = a^2 + v^2 - 2av \sin \phi \\ \therefore \sin \phi = \frac{a^2 - (V^2 - v^2)}{2av} \quad (9)$$

Again, we have

$$a^2 = V^2 + v^2 + 2Vv \sin \theta$$

whence, by differentiating

$$2a \cdot da = 2Vv \cos \theta \cdot d\theta \\ \therefore \cos \theta \cdot d\theta = \frac{a \cdot da}{Vv} \quad (10)$$

Substituting (9) and (10) in (8)

$$\int a^2 \sin^2 \phi \cdot \cos \theta \cdot d\theta = \int a^2 \left\{ \frac{a^2 - (V^2 - v^2)}{2av} \right\}^2 \cdot \frac{a}{Vv} \cdot da \\ = \frac{1}{4Vv^3} \int \left\{ a^5 - 2a^3(V^2 - v^2) + a(V^2 - v^2)^2 \right\} da. \\ = \frac{1}{4Vv^3} \left\{ \frac{a^6}{6} - \frac{a^4}{2}(V^2 - v^2) + \frac{a^2}{2}(V^2 - v^2)^2 \right\} \quad (11)$$

This is the general integral to be evaluated between the necessary limits. Two cases must be considered, viz. :—

- (1) For values of v up to and including V .
- (2) For values of v from V upwards.

Case 1.—When v is less than V , the plane MN cuts the sphere of reference. For the pressure on the front of the element, a varies between the limits EK and NK, or $(V+v)$ and $\sqrt{V^2 - v^2}$.

$$\text{Thus } \frac{1}{4Vv^3} \left[\frac{a^6}{6} - \frac{a^4}{2}(V^2 - v^2) + \frac{a^2}{2}(V^2 - v^2)^2 \right] \sqrt{V^2 - v^2} \\ = \frac{1}{4Vv^3} \left[\frac{(V+v)^6 - (V^2 - v^2)^3}{6} - \frac{(V+v)^4 - (V^2 - v^2)^2}{2} (V^2 - v^2) \right. \\ \left. + \frac{(V+v)^2 - (V^2 - v^2)}{2} (V^2 - v^2)^2 \right]$$

which, by straightforward simplification, becomes

$$\frac{V^2}{3} + Vv + v^2 + \frac{v^3}{3V} \quad (12)$$

and the pressure is obtained by multiplying this expression by the density of the gas.

If we put $v = nV$, the expression for the pressure on the front of the element becomes

$$p = \rho V^2 \left(\frac{1}{3} + n + n^2 + \frac{n^3}{3} \right) \quad (13)$$

It should be remembered that this expression only holds for values of n up to unity.

The first term is constant and equal to the static pressure, the remaining terms giving the increase of pressure due to the relative wind.

When $n = 0$, $p = \frac{\rho V^2}{3}$, the static pressure.

The interesting result is also shown that, when n is small, the third and fourth terms are negligible in comparison with the second, so that for low values of v the increase of pressure is approximately proportional to the velocity. As v increases the second and third powers become more important.

When $v = V$, so that $n = 1$

$$p = \frac{8}{3} \rho V^2 = \text{eight times the static pressure.}$$

Expression (13) can be written in the easily remembered form

$$p = \frac{\rho V^2}{3} (n^3 + 3n^2 + 3n + 1) = \frac{\rho V^2}{3} (n + 1)^3 \quad (14)$$

For the pressure on the back of the element, the limits of a are RK and NK, or $(V-v)$ and $\sqrt{V^2 - v^2}$.

$$\text{Thus } \frac{1}{4Vv^3} \left[\frac{a^6}{6} - \frac{a^4}{2}(V^2 - v^2) + \frac{a^2}{2}(V^2 - v^2)^2 \right] \sqrt{V^2 - v^2} \\ = \frac{1}{4Vv^3} \left[\frac{(V^2 - v^2)^3 - (V-v)^6}{6} - \frac{(V^2 - v^2)^2 - (V-v)^4}{2} (V^2 - v^2) \right. \\ \left. + \frac{(V^2 - v^2) - (V-v)^2}{2} (V^2 - v^2)^2 \right]$$

which by simplification becomes

$$\frac{V^2}{3} - Vv + v^2 - \frac{v^3}{3V} \quad (15)$$

Putting $v = nV$ as before, the pressure on the back of the element is given by

$$p = \rho V^2 \left(\frac{1}{3} - n + n^2 - \frac{n^3}{3} \right). \quad (16)$$

Here, again, the first term is the constant static pressure, the remaining terms giving the negative increase (*i.e.*, decrease) in pressure. As before, when $v = 0$, $p = \frac{\rho V^2}{3}$. Also, when v is small, the decrease of pressure is proportional to the velocity. When $v = V$, or $n = 1$, $p = 0$.

Expression (16) may be written in the form

$$p = \frac{\rho V^2}{3} (1 - n)^3. \quad (17)$$

The total resistance r due to relative wind is given by the difference between the pressures on the front and back of the element, *i.e.*, by subtracting (17) from (14). Thus

$$r = \frac{V^2}{3} [(n+1)^3 - (1-n)^3] - \frac{V^2}{3} [(n+1)^3 + (n-1)^3] \\ = \frac{\rho V^2}{3} (2n^3 + 6n). \quad (18)$$

Case 2.—When $v > V$, the pressure on the back of the element is always zero, the sphere of reference being entirely out of contact with the plane, values of a for the back vanishing. The pressure on the front of the element (which is equal to the total resistance r in this case) is found by integrating over the whole surface of the sphere between the limits of a , $(v+V)$ and $(v-V)$.

$$\text{Thus } \frac{1}{4Vv^3} \left[\frac{a^6}{6} - \frac{a^4}{2}(V^2 - v^2) + \frac{a^2}{2}(V^2 - v^2)^2 \right] \left. \begin{matrix} v+V \\ v-V \end{matrix} \right] \\ = \frac{1}{4Vv^3} \left[\frac{(v+V)^6 - (v-V)^6}{6} + \frac{(v+V)^4 - (v-V)^4}{2} (v^2 - V^2) \right. \\ \left. + \frac{(v+V)^2 - (v-V)^2}{2} (v^2 - V^2)^2 \right]$$

which reduces to $\frac{2}{3} V^2 + 2v^2$, so that

$$p = \frac{2}{3} \rho V^2 + 2\rho v^2. \quad (19)$$

Remembering that we are now dealing with a state of affairs in which the density of the gas in the immediate vicinity of the plane is 2ρ , as previously explained, we see that the first term is the constant static pressure due to gas of this density, and the second term is the pressure due to a relative wind of velocity v calculated for gas of density 2ρ by the usually given application of the Newtonian method. This result shows clearly that the pressure due to the relative wind is only proportional to the square of the wind velocity

v when the term $\frac{2}{3} \rho V^2$ is negligible—that is, when $V = 0$, or v is infinite. Considered in another way, we see that the pressure can only be written in the form $p = \rho v^2 + \text{a constant}$ when V is less than v , so that for such an expression to hold good for values of v down to zero, the constant must be zero. Bearing in mind also the fact that (19) is established under conditions in which the pressure on the back of the element is zero, the reader will now be in a position to grasp more fully the significance of the comments with which we started.

It is interesting to note that, putting $v = nV$ as before, (19) can be written in the form

$$p \text{ (or } r) = \frac{\rho V^2}{3} \left[(n+1)^3 - (n-1)^3 \right] \quad (20)$$

which should be compared with (18).

It will be noted that the value $v = V$ is a critical velocity in that, at this value, there is discontinuity in the law of pressure variation for the front and back of the plane, and for the total resistance. This discontinuity occurs, according to accepted views, at a velocity equal to 1.34 times the velocity of sound. There is, however, no geometrical discontinuity in the pressure-velocity curves.

With the alternative view suggested by the writer, a similar discontinuity is found, but at a velocity $v = V$ identical with the velocity of sound. To obtain expressions corresponding to those found above, we use $\int a^2 \sin \phi \cos \theta d\theta$ in place of $\int a^2 \sin^2 \phi \cos \theta d\theta$, the method of procedure being the same in each case as before. Thus

$$\int a^2 \sin \phi \cos \theta d\theta = \int a^2 \left\{ \frac{a^2 - (V^2 - v^2)}{2av} \right\} \frac{a da}{Vv} - \frac{1}{2Vv^2} \left\{ a^4 - a^2 (V^2 - v^2) \right\} da = \frac{1}{2Vv^2} \left[\frac{a^6}{5} - \frac{a^4}{3} (V^2 - v^2) \right],$$

the general integral to be evaluated between the proper limits. We will here give only the results.

Case 1, $v < V$.—Pressure on the front of the element is given by

$$p = \rho V^2 \left(\frac{1}{2} + \frac{4}{3} n + \frac{9}{8} n^2 + \frac{4}{15} n^3 - \frac{1}{48} n^4 + \text{terms involving higher powers of } n \right). \quad (21)$$

$$\text{When } n = 0, p = \frac{\rho V^2}{2}.$$

For low values of v , the increase of pressure is proportional to the wind velocity, approximately.

When $v = V$, $n = 1$, and the pressure is given by

$$p = \frac{16}{5} \rho V^2 = \frac{6}{5} \text{ times the static pressure,}$$

a value to which (21) approximates as n increases.

For the back of the element

$$p = \rho V^2 \left(\frac{1}{2} - \frac{4}{3} n + \frac{9}{8} n^2 - \frac{4}{15} n^3, \text{ &c.} \right) \quad (22)$$

When $n = 0, p = \frac{\rho V^2}{2}$, and when $n = 1, p = 0$, a value to which (22) approximates as n increases.

The total resistance is given by

$$r = \rho V^2 \left(\frac{8n}{3} + \frac{8n^3}{15} \right). \quad (23)$$

Case 2, $v > V$.—The pressure on the back of the element is zero, as before. The pressure on the front, which is equal also to the total resistance, is given by

$$p = 2\rho V^2 \left(n^2 + \frac{2}{3} - \frac{1}{15n^2} \right) \quad (24)$$

When in the form $p = 2\rho \left(v^2 + \frac{2}{3} V^2 - \frac{V^4}{15v^2} \right)$ we see that

$p = 2\rho v^2$ when $V = 0$, and can only be proportional to v^2 for all values of v when the second and third terms are negligible, i.e., when $V = 0$, or $v = \infty$.

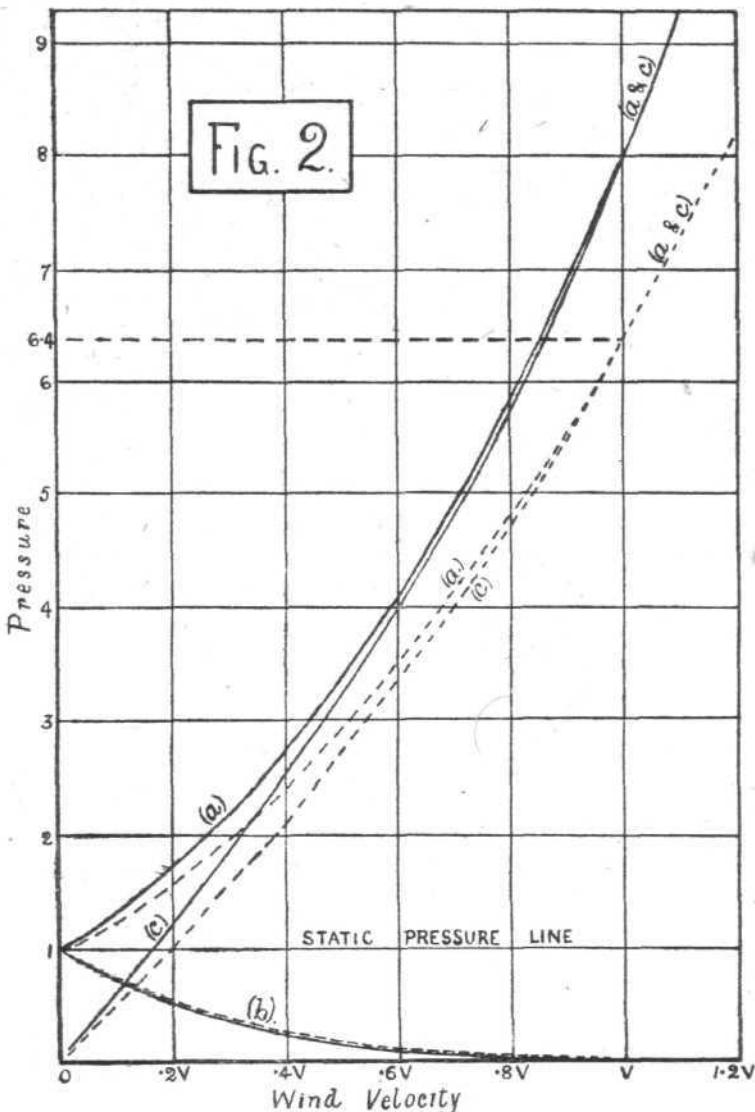
It is interesting to note that, with both views of kinetic theory, the expressions for the pressures on the back and front of the element involve the first, second and third powers of v or n up to the value $n = 1$, whilst the total resistance involves the first and third powers only. For values of n greater than unity the expression giving both pressure and resistance omits the odd powers depending only on the second power in (19), and depending chiefly on the second power in (24).

The above results are shown in the graph (Fig. 2), which gives the pressure-velocity curves—(a) for the front of the element; (b) for the back of the element; (c) for the total resistance—the full-line curves corresponding with expressions (14), (17), (18) and (19), and the broken-line curves with (21), (22), (23) and (24).

As a further development of more particular interest to aeronautics, we may apply the foregoing methods to determine how, for a given wind velocity v , the pressures on the front and back of an element of area vary when the inclination of the relative wind varies. It will be seen from Fig. 3 (in which the lettering is similar to that of Fig. 1 to facilitate comparison) that the effect of compounding the relative velocity v of the wind with the molecular velocity V is to displace the centre C of the sphere of reference a distance CK ($-v$) from the element K along a line inclined to the

plane at an angle EKN ($-\psi$, say), equal to the inclination of the relative wind. Thus, for any stream such as GC ($-V$) the resultant velocity is given by GK ($-a$).

If from G we draw a perpendicular GS to the plane, meeting the plane at S , and join SK , the angle GKS (β , say) is the resultant inclination of the stream to the plane. By



reasoning similar to that already given, we see that we must find the mean value of $a^2 \sin^2 \beta$ for all points such as G uniformly distributed over the surface $MHEN$, and apply this mean value to gas of effective density corresponding to the same surface. We cannot, however, take a zone GHF as our element of surface, because β has not the same value for all

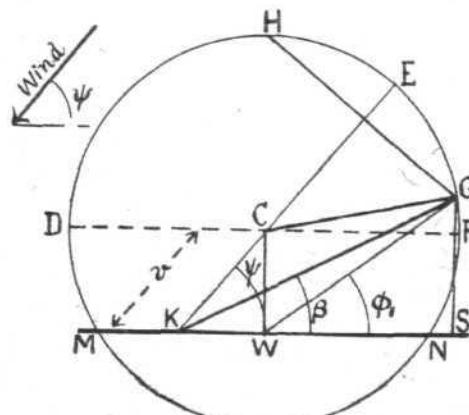


Fig. 3.

points in this zone. Now, $a^2 \sin^2 \beta = GS^2$, and if we draw CW perpendicular to the plane MN , join GW , SW , we see that, putting a_1 for GW , and ϕ_1 for the angle GWS , $a_1^2 \sin^2 \phi_1 = GS^2 = a^2 \sin^2 \beta$. We therefore have to find the mean value of $a_1^2 \sin^2 \phi_1$ for all points such as G uniformly distributed over the surface $MHEN$. This is the problem

already solved with reference to Fig. 1, except that CW ($= v \sin \psi$) has taken the place of CK (Fig. 1). We need therefore only substitute $v \sin \psi$ for v in the expressions previously obtained, or, alternately, put $n \sin \psi$ for n , to obtain corresponding expressions for relative wind making an angle ψ with the plane.

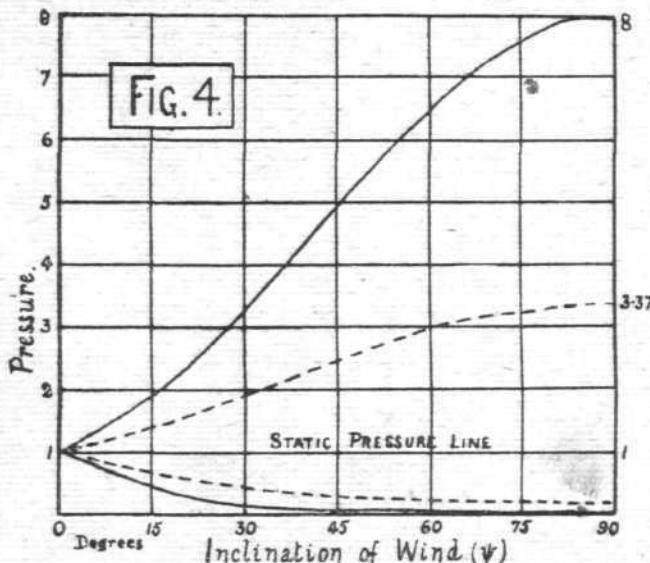
Thus, for values of n up to $\frac{1}{\sin \psi}$ we get from (14) the pressure on the front of the element is given by

$$p = \frac{\rho V^2}{3} (n \sin \psi + 1)^3 = \frac{\rho V^2}{3} (n^3 \sin^3 \psi + 3n^2 \sin^2 \psi + 3n \sin \psi + 1).$$

This result shows that we cannot, for a given velocity, express the relation between inclination and pressure as a constant pressure multiplied by a function of $\sin \psi$. In other words, the way in which pressure varies with inclination depends upon the value of v (or n). When $\psi = \frac{\pi}{2}$, the above expression becomes identical with (14). When $\psi = 0$, the wind is parallel to the plane, and $p = \frac{\rho V^2}{3}$.

Again, when n is small, the excess pressure due to the wind varies approximately as $\sin \psi$. The critical velocity is now $v \sin \psi = V$, or $n \sin \psi = 1$. With this value of $n \sin \psi$, we get $p = \frac{8}{3} \rho V^2$, the value obtained for the normal wind.

Thus the pressure corresponding to the critical velocity is the same for all conditions.



For the back of the element we get from (17)

$$p = \frac{\rho V^2}{3} (1 - n \sin \psi)^3.$$

Thus $p = \frac{\rho V^2}{3}$ when either n or ψ is zero, and the above

expression becomes identical with (17) when $\psi = \frac{\pi}{2}$. When $n \sin \psi = 1$, $p = 0$.

Similarly, for the total resistance, we get from (18)

$$r = \frac{2}{3} \rho V^2 (n^3 \sin^3 \psi + 3n \sin \psi).$$



Aircraft and the Opening of the War.

In the second chapter of his remarkable book—"My Four Years in Germany"—which, thanks to the enterprise of the *Daily Telegraph*, is brought within the reach of all, Mr. Gerard, who was United States Ambassador to Berlin up to the beginning of this year, reminds us that: "When on the evening of August 3rd, 1914, Von Schoen, the German Ambassador in Paris, presented to the French Government the German declaration of war, that document stated that 'the German civil and military authorities have reported a certain number of definite acts of hostility committed on German territory by French military aviators. Several of these have clearly violated the neutrality of Belgium in flying over the territory of this country. One of them tried to destroy structures near Wesel. Others have been seen in the region of Eiffel. Another has thrown bombs on the railway near Karlsruhe and Nurnberg. I am charged, and I have the honour to make known to your Excellency, that in the

When n is greater than $\frac{1}{\sin \psi}$ we get, from (19),

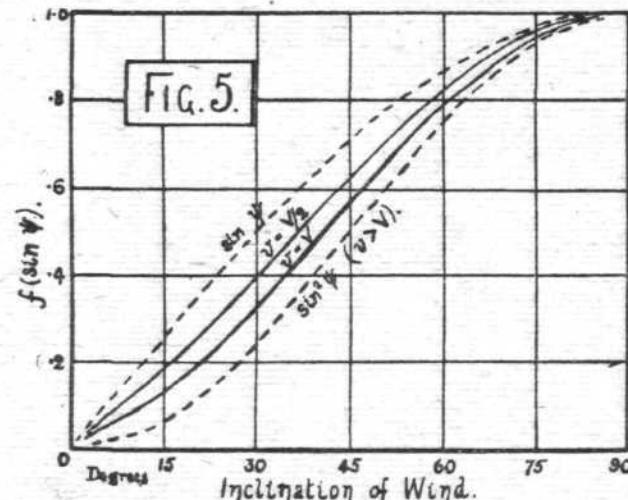
$$p = r = 2\rho \left(\frac{V^2}{3} + v^2 \sin^2 \psi \right),$$

which becomes $p = 2\rho v^2 \sin^2 \psi$, in agreement with the usual application of the Newtonian method, when $V = 0$, as we should expect.

Curves are given in Fig. 4 showing how the pressure varies with the inclination for two different velocities of relative wind, viz., $v = V$ (full lines) and $v = \frac{V}{2}$ (broken lines). To

show more clearly how the relation between pressure and inclination depends upon the velocity, the excess pressure on the front of the element expressed, for different inclinations, as a fraction of the excess pressure when the wind is normal, has been plotted in Fig. 5. The full line curves relate to the velocities $v = V$ and $v = \frac{V}{2}$. The broken line curves given for the sake of comparison relate to velocities $v =$ approximately zero, and $v > V$, the curves showing respectively $\sin \psi$ and $\sin^2 \psi$.

In the foregoing we have confined our attention to an element of area. If the relative wind were the same for all elements of a surface, the above results would apply to a finite area, the pressure being the same at all points of the surface. With a plane of finite area, however, the wind is deflected so that the relative wind is not the same and the pressure distribution is not uniform over the surface. For this reason, amongst others, the above results could not be expected to agree exactly with experiment. With a plane



of, for example, circular or square form, moving in a direction normal to the surface, the relative wind should, from considerations of symmetry, be normal at or near the geometric centre of the figure. If the foregoing theory is sound, we might reasonably expect it to agree fairly approximately with pressure variation, as velocity varies, measured in the region of the geometric centre. In any case, it appears to be clear that the velocity-square law and the sine-square law cannot be accurate for a gas capable of exerting static pressure. Further, it seems highly probable that these laws cannot be accurate for liquids, even if perfectly mobile, although the foregoing theory, without modification, is not applicable to liquids.



presence of these aggressions, the German Empire considers itself in a state of war with France by the act of this latter Power."

Fatal Accidents.

At an inquest held on August 11th, on 2nd Lieut. C. R. Waller, who was killed at Hounslow on August 9th, it was stated that the pilot went up for an altitude test. He had never before flown more than 3,000 ft. up, but on this occasion he went up to 16,000 ft. The machine then nose-dived, righted itself, dived again, rolled over and collapsed, the pieces being scattered over a large area. It was suggested that the deceased became faint or had a heart attack. A verdict of "Accidental Death" was returned.

Lieut. W. A. Taylor, R.F.C., was killed while flying near Rugby on August 10th, his machine diving to the ground from a height of 3,000 ft. He was killed instantly.

FROM OTHER LANDS.

THE SPAD SCOUT.

IMPROVEMENT is so rapid and changes so frequent in the design of the Spads, developed by the Société Anonyme pour l'Aviation et ses Dérivés, Paris, that the type used within the next few months may differ in several respects from that in use to-day. The accompanying drawing shows the outlines of the type "S. VII," which is said to be one of the most recent. Fighting craft of this type are piloted by members of the Lafayette Escadrille, and used with good effect equipped with one and sometimes two Lewis or Vickers machine-guns.

Approximate general dimensions of the "S. VII" are as follows:—

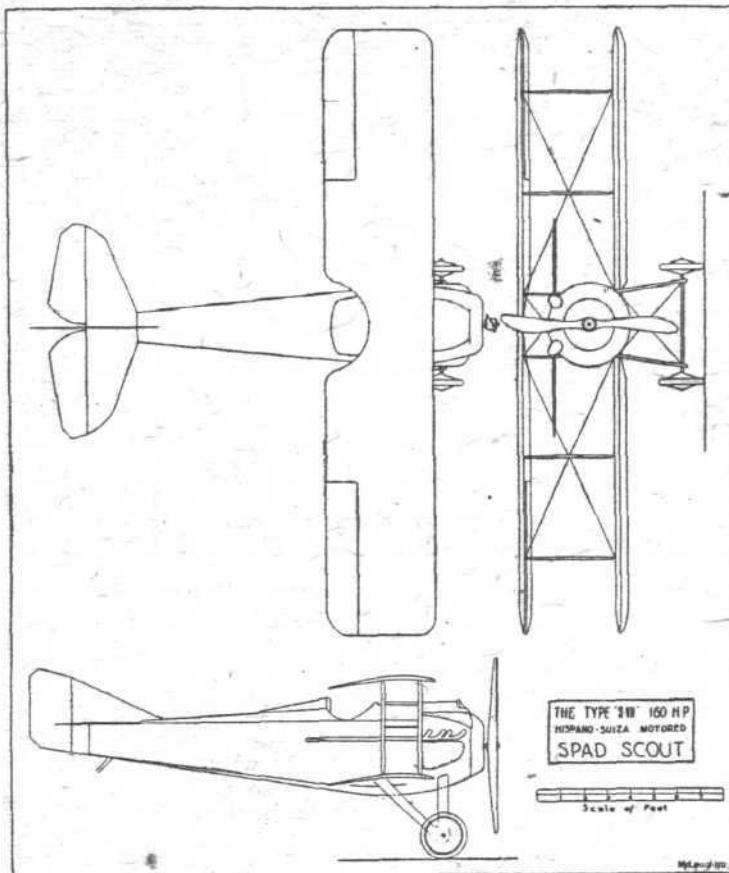
Span, upper plane	..	..	25 ft. 6 ins.
Span, lower plane	..	..	25 ft. 6 ins.
Chord, both planes	..	..	4 ft. 7 ins.
Gap between planes	..	..	4 ft. 2 ins.
Overall length	..	..	20 ft. 0 ins.
Total weight	..	..	1,525 lbs.
Useful load	..	..	470 lbs.
Climb in 10 minutes	..	..	9,300 ft.
Speed at sea level	..	..	132 m.p.h.
Speed at 3,000 metres	..	..	126 m.p.h.
Motor, Hispano-Suiza "V." type	..	..	160 h.p.

Both planes are nearly rectangular in plan, the ends being square and not raked, with corners slightly rounded off. The deep cut-out portion of the top plane, over the pilot's seat, as well as the close spacing of the interplane struts, shows a large area of plane surface aft of rear wing beams. As the *ailerons* are comparatively narrow, they must be carried on a subsidiary wing spar located about 9 ins. back of the main beam.

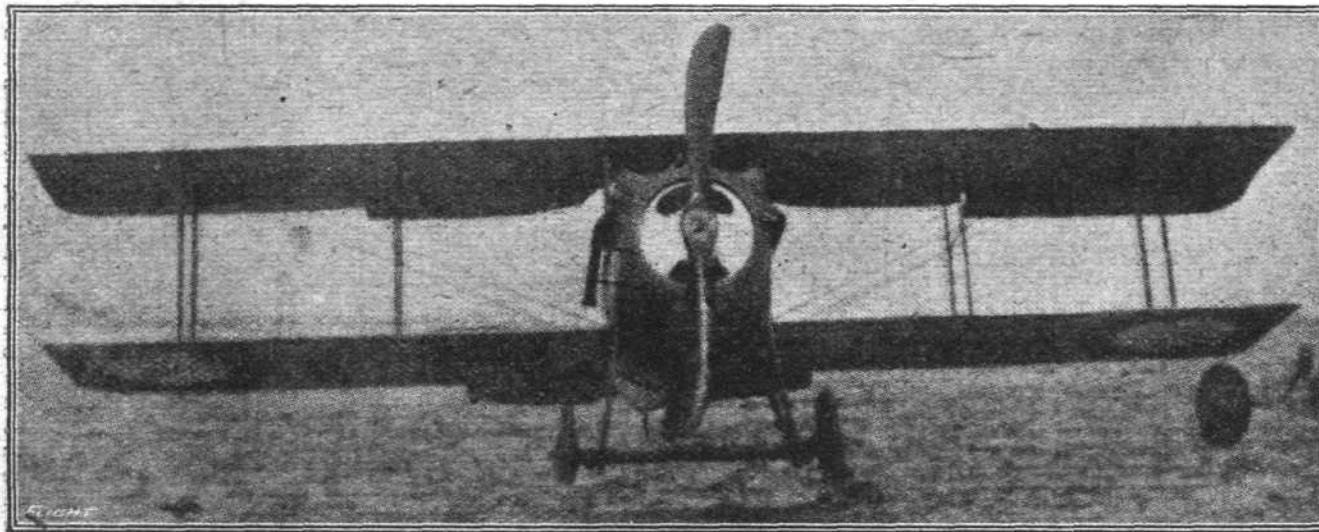
It will be noticed that the interplane bracing is unusual; the wires from each side of the *fuselage* extend directly to the end struts, crossing at the intermediate struts. Where the wires cross there is a steel tube brace connecting the forward with rear intermediate wing struts.

The *fuselage* is exceptionally deep, and the bottom is curved below the lower *longerons* as well as the sides and top, giving a smooth stream-line effect. The fore end of the machine, which houses the motor, is covered with aluminium, with a circular radiator opening which resembles the cowling of a rotary motor. Protuberances on either side of the cowling show where the camshaft covers of the Hispano-Suiza motor project. Perforations are made in the cowling, about the motor projections, for the admission of air.

Wheels of the landing gear have a track of 5 ft.; the axle runs in slots which guide it up and backward in line with the rear chassis struts. Shock absorption is with rubber cord.



The Hispano-Suiza motor develops 160 h.p. at about 1,500 r.p.m. Eight cylinders arranged V-type, water-cooled four-cycle, 4.7245-ins. bore by 5.1182-ins. stroke; piston displacement, 718 cubic ins. Weight, including carburettor,



The rudder is hinged at a point about 10 ins. beyond the *fuselage* termination. The usual fixed stabilising plane and elevators are employed. The vertical fin extends 12 ins. forward of the leading edge of the tail plane.

magnetics, starting magneto, crank and propeller hub, but without radiator, water or oil, and without exhaust pipes, 445 lbs. Fuel consumption, $\frac{1}{2}$ lb. of gas per horse-power hour; oil consumption, 3 quarts per hour.—*Aerial Age, U.S.A.*

The Homestead Association and Rest Homes.

AN appeal for assistance is being made by the above association, which aims at providing homesteads for discharged convalescent officers and men, where they may live and train after they have passed out of the range of medical treatment. The Association has already been presented with a small property "In Memoriam," and gifts may take

the form of money, houses or land. Among the Vice-Presidents are Lieut.-General Sir David Henderson, K.C.B., Director-General of Military Aeronautics, and Lady Henderson, while Dr. C. Atkin Swan, who has done such splendid work in connection with the R.F.C. hospital, is the honorary medical consultant. Full particulars can be obtained from the Hon. Organising Secretary, Sergeant-Major D. Spencer, at 19-20, Craven Street, Strand, W.C. 2.

FROM THE

AIRISMS
FOUR WINDS.

NEUTRAL countries—there are few that now remain out of the world's strife—are evidently looking ahead none the less, with the result that the very large orders which have been for some little time showered upon America for aeroplanes have at last had to be vetoed except under licence. It is good hearing to know that the U.S. Government have taken this step without too much delay, so as to conserve the entire American output for themselves and the Allies. You never quite know how frequently neutral aeroplane pilots may find it necessary to make forced landings over frontier boundaries and then not trouble to get them back home again.

ACCORDING to the *Tägliche Rundschau*, a summary of German war booty shows that in the war up to July 26th the Huns have secured 2,298 aeroplanes, 186 balloons and three airships. It's as well to note that these figures include those machines immediately re-employed in action. The *Rundschau* does not give the dissected figures as to the nationalities of the aerial booty claimed.

By way of another view of the departmental delay in hurrying on full capacity aeroplane construction, referred to in a leader this week, an interesting story of a visit to an aeroplane "village" which appeared in the *Star* last week, concludes after a live description of a journey through the "village" and the factory, as follows:—

"And this is Aeroplane Village, a little town that has grown up around a single works. A village where nine-tenths of the inhabitants disappear within those factory gates every morning at 7 o'clock and work until 8 in the evening. And what does it all amount to? One machine a day. True, there are hundreds of these factories dotted about in England, but with automatic machinery everywhere in operation, and, as in this case, some 700 hands working, one machine a day is absurd.

"This war is to be finished in the air, we are all agreed upon that. The output of machines is to be doubled, so they say. Three machines a day could be made in such a factory as that described. Why are they not?

"The matter is that there is a hoodoo that sits on the roof of every such factory in England. A hoodoo who sees to it, that there is a shortage of timber when there is plenty of steel and a shortage of steel when there is plenty of timber, and a 'waiting for engines' when there is plenty of both. A hoodoo who will not allow a manufacturer to ring up the original designing firm on the 'phone when an inaccuracy is noticed, but makes him communicate through the hoodoo's palace and wait perhaps weeks for the corrected figures. I wonder would the Great I Am Hoodoo like to visit Aeroplane Village? I should like to show him round."

Most things have happened per aeroplane, and it only remained for a "desertion" to be accomplished by that means to about fill the bill. This item has now been added, according to a communication from Amsterdam, a German soldier having on August 5th descended in Holland, near Oostburg, in an aeroplane, he being promptly interned. The sequel came later when it was discovered that he had deliberately alighted on neutral soil, this being his method of "deserting." It appears he was attached to an aviation camp at Knocke, his section assisting in the sending off and homecoming of aviators. Having a knowledge of flying, he waited for a favourable moment, and then mounted an aeroplane when nobody was near, rose safely, and, as stated, made a safe descent into Dutch territory.

WITH little doubt the noxious poison shells which are the latest invention of the Huns, will be under sample for



Women for the R.F.C.

THE War Office instruction giving details of the formation of the Women's Army Auxiliary Corps announces that among the main categories of employment in which the substitution of women at home and at the base and on the lines of communication overseas has been approved is (g) Technical women (employed with the R.F.C. and A.S.C. Motor Transport).

Londoners, as it is a very sure thing there will be plenty of these distributed upon the next Gotha excursion to the metropolis. It would be as well to remember that near where they fall cellars may be far from safe funk holes, as it is the nature of the heavy poisonous fumes which emanate from these abominations to descend and they are capable of penetrating any reasonable depth of space into cellars, &c. One or two finding their way to the bottom of a tube lift shaft might render the tube sanctuary anything but a healthy spot. As smoking is said to be somewhat of an antidote to their ill-effects the female cigarette smoker ought to score.

BANKS, generally, have decided to suspend business for the time being when an air-raid is imminent. Somewhat of a wise precaution, should there be a rescue scramble amongst the debris to save all the thousands of fair damsels who now occupy the stools of the one-time 9 to 4 bank clerks. Nobody, of course, would be looking for stray cash.

IT seems there is no exact officially recognised routine to be followed, but for the guidance of the public the arrangement is understood to be as follows:—As soon as warning has been given of the possibility of an air raid, the public transaction of business by the banks is liable to be suspended until the "all clear" signal is received. If the "all clear" is given not later than 2 p.m. (or, on Saturdays, noon), the closing time for the banks will be as usual; if it is not received by 4 p.m. (or on Saturdays by 2 p.m.) they will not reopen that day at all; but if it comes at any time between 2 p.m. and 4 p.m. (or on Saturdays between noon and 2 p.m.) the banks will remain open to the public for a whole hour afterwards.

This emergency Bank legislation may prove pretty awkward in regard to straightening out certain financial obligations, but no doubt an antidote on both sides will be found for such exceptional conditions.

THERE is little doubt that the Royal Flying Corps is in a large measure to thank for the submission by the Mahsuds to the Government terms, and their submission to the oath of peace. This fact is generously recognised by Sir Charles Monro in his report upon the results, Sir Charles stating that the tribesmen have for the first time felt the power of the R.F.C.

THAT our R.F.C. pilots have got uncomfortably near to the All Highest's sacred person emerges without much reservation in the course of Mr. James W. Gerard's "Four Years in Germany," now appearing in the *Daily Telegraph*. In Chapter X., the late United States Ambassador in Berlin, writing of his visit to the Kaiser's Headquarters on May 1st, 1916, says:—"The Great General Headquarters of the Kaiser for the Western front is in the town of Charleville-Mézières, situated on the Meuse, in the Department of the Ardennes. . . . The Emperor had been occupying a large villa in the town of Charleville until a few days before our arrival. After the engineer of his private train had been killed in the railway station by a bomb dropped from a French airplane, and after another bomb had been dropped within a hundred yards of the villa occupied by the Kaiser, he moved to a red-brick château situated on a hill outside Charleville, known as either the Château Bellevue or Bellaire."

"AN official notice in the British Museum Library states that readers will incur little risk during air-raids, 'except from a bomb that bursts in the room.' It is the ability to think out things like this which raises the official mind so high above the ordinary."—*Charivari*.



A New Aircraft Factory for America.

A MESSAGE from Washington states that Mr. Daniels, Secretary of the Navy, has arranged for the construction of a new aircraft factory at the Navy Yard of Philadelphia at a cost of \$1,000,000 (£200,000). The factory, which is to be completed in 100 days, will employ 2,000 workers, and produce a thousand small aeroplanes annually.

IN COMMAND OF THE FLYING CORPS IN THE FIELD.

THE official photograph which we reproduce below of Major-General Hugh Montague Trenchard, C.B., D.S.O., Royal Scots Fusiliers, in command of the Royal Flying Corps in the Field, is taken from a painting by Mr. William Orpen, A.R.A. This well-known Academy Associate has in a very masterly manner brought out the great strength of character which has asserted itself so often throughout General Trenchard's military career, and particularly during the progress of this war.

General Trenchard was born on February 3rd, 1873. He entered the Royal Scots Fusiliers through the Militia in 1893, and became Captain early in 1900. He had meantime seen service in South Africa with the Imperial Yeomanry, Bushmen Corps, and afterwards with the Canadian Scouts. While serving with the latter he was dangerously wounded, and was awarded the Queen's medal with three clasps, and the King's medal with two clasps. He became Brevet-Major in 1902, and served with the West African Frontier Force between 1903 and 1910. Here he rose to be Commandant of the North Nigerian Regiment in 1908, having previously been mentioned in despatches and having gained the D.S.O. in 1906; with the West African Frontier Force he won a medal and three clasps. Towards the end of 1912 he became Instructor, with the grade of Squadron Commander, to the Central Flying School, being promoted a year later, in September, 1913, to Assistant Commandant. At the outbreak of war in 1914 he became Commandant (Temp.) of the Military Wing of the Royal Flying Corps. In 1915 he was promoted first Lieutenant-Colonel, January 18th; then Colonel, June 3rd, with later the temporary rank of Brigadier-General. He held this rank from August 25th, 1915, to March 23rd, 1916, when he became Major-General (Temp.). In the June of 1915 he became A.D.C. (extra) to the King, and Brigade Commander a month later. Since 1914 Major-General Trenchard has been made a Commander of the Bath, has been awarded the Order of St. Anne (3rd Class with Swords), and has received distinguished mention in despatches.

Mr. Orpen, one of the ablest portrait painters of the day, who has also painted a very fine portrait of Field-Marshal Sir Douglas Haig, is to depict scenes at the Front, and as he is to treat the war in a symbolical way his pictures will be awaited with keen interest.



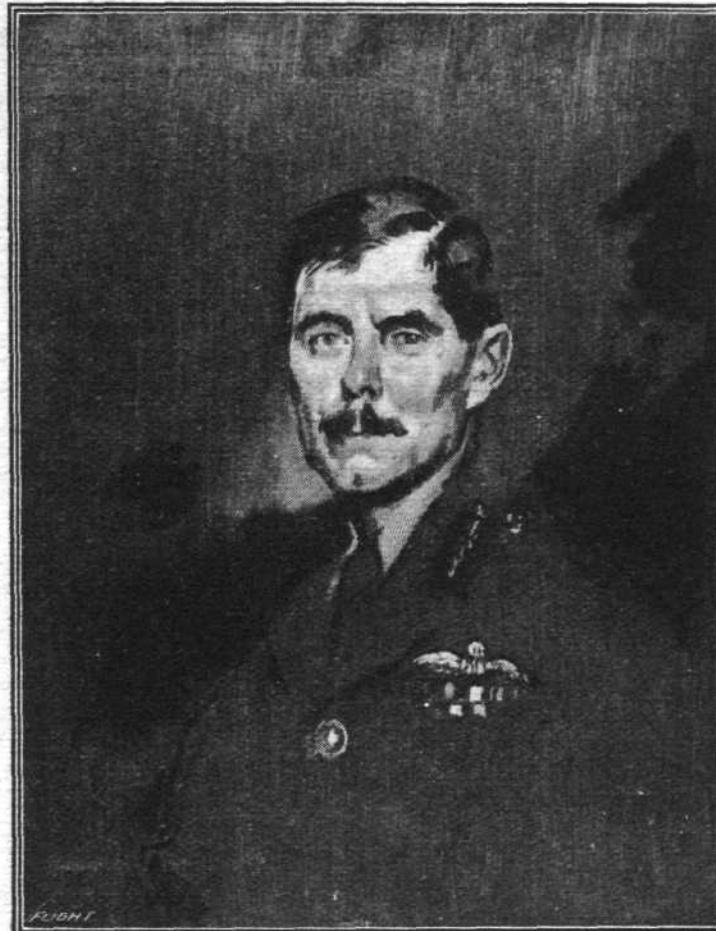
PERSONALS.

Casualties.

Captain J. R. ANTHONY, R.F.C., was reported a prisoner of war some time ago, and news has now been received that he has died of wounds. He was the son of the late Alderman Anthony, of Pwllheli. Captain Anthony was wounded while attacking Germans, who were in superior numbers. Before the war he was a solicitor at Pwllheli.

Major OWEN MOSTYN CONRAN, King's Own Royal Lancaster Regiment, attached R.F.C., who was killed in France on the night of July 28th when on bombing duty, was the youngest son of the late Major Conran, of the Essex Regiment, and of Mrs. Conran, of Brondyffryn, Denbigh. He was born on April 1st, 1881, was educated at Shrewsbury, served in the South African war, and joined the Royal Lancaster Regiment from the South Lancashire Militia in 1901. He was made captain in July, 1907, and on July 29th, 1913, was seconded for service with the Egyptian Army, becoming major in September, 1915. At the outbreak of war he saw active service in Egypt and the Sudan, and did a considerable amount of flying. In July, 1916, he was sent to England on sick leave, during which he obtained permission to become attached to the R.F.C. In November, 1916, he was made Flight Commander, and in April, 1917, he went to France.

Squadron Commander EDWIN HARRIS DUNNING, D.S.C., R.N., whose death on August 7th while flying is announced, was son of Sir Edwin Harris Dunning, of Jacques Hall, Bradfield, Essex. He was born in 1892, and was educated at



(From an Official photograph.)

Major-General Hugh Montague Trenchard, C.B., D.S.O., Royal Scots Fusiliers, From a fine example of portrait painting by William Orpen, A.R.A.

Fonthill, and at the Royal Naval Colleges at Osborne and Dartmouth. On the outbreak of war he joined the R.N.A.S. He was wounded on June 20th, 1916, in an air fight over the Aegean, and received the Distinguished Service Cross for his gallantry on that and other occasions. He was flying as pilot with Lieutenant Oxley, C.B., D.S.C., as observer, on escort and reconnaissance patrol for a flight of bombing machines. Two enemy machines were engaged at close range and forced to retire, and as his machine withdrew Squadron Commander Dunning was hit in the left leg and the machine was badly damaged. His observer improvised a tourniquet and took control of the machine while Commander Dunning adjusted the tourniquet. The pilot was obliged to keep his thumb over a hole in the petrol tank in order to preserve sufficient fuel to reach the aerodrome, where he made a good landing.

Second Lieutenant ERIC GORDON-JONES, Middlesex Regiment, who has died of wounds received in action, was the son of Mr. B. Gordon-Jones, North Finchley, and was born in 1897. Educated at Christ College, Finchley, and the Royal Military College, Sandhurst, he got a commission in April of last year in the regiment mentioned, and was attached to the Royal Flying Corps. He was nearly killed by a severe fall, and on his recovery rejoined his regiment—with which he has been in France since the end of last December, taking part in several engagements.

Second Lieutenant NOEL MARTIN PIZEY, Yeomanry, attached R.F.C., who died on July 27th of wounds received

the same day, was the elder son of the late John Martin Pizey and Mrs. Pizey, of Cothamside, Bristol. He enlisted as a trooper in the Yeomanry in 1914, and later joined the Inns of Court O.T.C., receiving his commission in December, 1915. He was sent to France in November, 1916, and attached to the R.F.C. a few months later. He met his death during a fight between five British machines and 20 of the latest type of enemy machines, seven of which were brought down, while all the British regained their lines.

Second Lieutenant MAURICE SHARPE, R.F.C., after having been reported missing, is now officially reported killed in action. He was the youngest son of Sir Alfred Sharpe, C.B., K.C.M.G., and of Lady Sharpe, of Elmhurst, Lancaster. Educated at Rugby, he had a business training with Messrs. Storey Bros., Lancaster. He took part in the campaign in the Cameroon, and afterwards obtained a commission in the Royal Flying Corps. He was 29 years of age. He was a keen Rugby forward, and excelled in rowing, hockey, and motoring. He is the seventh Rugby forward of the Vale of Lune Club who has been killed in action. Ten of the playing members of the club have fallen in the war.

Second Lieutenant CLIVE MAXWELL BAILEY, R.F.C., who was killed while flying on August 3rd, was the elder son of Mr. Reginald Bailey, of Barton Hatch, Limpsfield, Surrey, and was aged 23. He was an undergraduate of Caius College, Cambridge, and before joining the Flying Corps he had served with the Royal Fusiliers at the front as a bomber, having enlisted in the Universities' and Public Schools' Battalion of that regiment.

Second Lieutenant WALTER VOSPER JAKINS, R.F.C., accidentally killed while flying on July 10th, was the only son of the late Sidney Milroy Jakins and of Mrs. Jakins, late of Woodford. He was aged 20, and was educated at Lindisfarne College, Westcliff-on-Sea, and at Bancroft's, Woodford. At the age of 15 he edited a school magazine on aviation. He joined the Army on November 26th, 1915, as a despatch rider in the R.E., and became a corporal the following month. In October, 1916, he became a cadet in the R.F.C., but in the following December went to Lincoln College, Oxford, and gained his commission from there. He earned his "wings" on May 10th, 1917.

Major A. J. Ross, D.S.O., R.E. and R.F.C., who was accidentally killed while flying in the eastern counties on August 2nd, was born in 1881 and was educated at Malvern College and at Woolwich. He obtained a commission in the Royal Engineers in May, 1900, and went to India the next year, but owing to a severe illness was invalided home and was placed on half-pay for six months, during which time he studied Arabic. Returning to India in 1906, he did good service, mainly on military works in the Punjab. In 1910 he became captain, and in January, 1911, he was seconded for service in the Egyptian Army. On the outbreak of the war

he reverted to the British Army and served in the Sinai desert. In 1915 he served with the Flying Corps as an observer in the campaign against the Senussi Arabs. In that year he was given his brevet majority and the Order of the Nile (4th Class), and in the following year the D.S.O. Having qualified as a pilot at home, he returned to Egypt as flight commander, and served there up to the spring of this year. On promotion to squadron commander he came to England, and after some work in France and elsewhere he was sent towards the end of last month to one of the eastern counties. His services were further recognized by the award, just announced, of a bar to the D.S.O. Major Ross excelled as a linguist in Eastern languages and as a mathematician. He won a classical scholarship at Malvern in 1895, and in 1898 passed into Woolwich second on the list, with unusually high marks in mathematics.

Married and to be Married.

An engagement is announced between CLIFFORD J. SKIDMORE-JONES (corporal, R.F.C. wireless), only son of Mr. and Mrs. Skidmore-Jones, Cromer House, Halesowen, and MURIEL TOTTENHAM, daughter of the late Rev. Mr. Tottenham, formerly rector of Thurning, Oundle, and of Mrs. Tennant-Austen, of Glenfarne, Astwood Bank, Warwickshire, and Bournemouth.

An engagement is announced between Mr. NORMAN B. LOVEMORE, R.F.C., youngest son of Mr. W. B. Lovemore, of Mbabane, Swaziland, South Africa, and NOWELL, only daughter of Mr. LIONEL F. GOULD, of The Gable House, Bilton Rugby.

The marriage between ROBERT WILSON PATTERSON, Lieutenant, R.F.C., late R.E., second son of Mr. and Mrs. Patterson, 32, Westbourne Gardens, Glasgow, and MABEL, youngest daughter of Dr. and Mrs. FOTHERINGHAM, of Ross-Hill, Motherwell, and Lingo, Fife, will take place quietly at Lingo on August 23rd.

An engagement has been announced between Captain C. R. ROWDEN, M.C., Worcestershire Regiment, and R.F.C., only son of A. R. Rowden, of Hillend, Eastnor, Ledbury, and FRANCES, elder daughter of Mrs. JOBSON, Millcroft, Rottingdean, Sussex.

Items.

Lieutenant F. D. HOLDER, R.F.C., who last week received the M.C. in connection with the destruction of an enemy airship, presumably L 48, is only 20 years old. He is the son of Mr. Edward Holder, of Beckhythe, Rose Walk, Purley, and was educated at Felsted and Sandhurst, joined the East Kent Regiment two years ago, later becoming attached to the R.F.C. He was out in France for some time and did a good deal of flying there, and had many adventures.

The will of Lieutenant HERBERT CECIL CUTLER, aged 26, Worcestershire Yeomanry, attached R.F.C., of Bromsgrove, killed in action, has been proved at £6,191.



BOOK REVIEWS.

"Ivan Heald, Hero and Humorist."

ONCE in a wilderness of publishers' announcements, lit by a large low blue moon, there comes a Book: which is a delight and a despair. The one, from the moment you read the first chapter, and it thenceforward becomes the companion of board and bed, the lure from urgent labour, the man as he lived, telling you just what he makes of this simple mystery of life. And therefore, the other. Because, to do it even scant reviewer's justice, one knows not where to begin; and so feels constrained to reprint every word and the book as a serial issue. This obvious duty, of course, would never do. The publisher, mere commercialist that he is, would complain of piracy. Such a book is "Ivan Heald," with the rather futile sub-title of "hero and humorist": being the collated writings of him who delighted us for certain years, all too few, in the columns of the *Daily Express*. And one of the greatest books of wise inconsequences ever written. For Ivan Heald lived and saw and wrote from that fourth dimension where all common things have a soul and a speech of their own; where fairies not only really exist, but rule with a sceptre of blue-bells, and the wisdom of the wise is turned to foolishness. That dimension which encloses heaven on earth. Which no doubt Ivan Heald still keeps having passed from this lesser daylight in his country's service. But this book keeps him with us still. Get it then, and you will see why it has been impracticable to oblige the publishers, with any conventional "review" of it. The publishers are C. Arthur Pearson, Ltd. 3s. 6d. net.

"The Yearbook of Wireless Telegraphy, 1917."

To those interested in wireless telegraphy the above annual volume is a veritable mine of information. Not only does it comprise reference and technical sections, but there are a large number of special contributions, comprising articles both of technical and general interest. Dr. Fleming, for instance, writes on "The Electric Arc as a Generator of Persistent Oscillations," and treats the subject with all the thoroughness which is so characteristic of his writings. Dr. Eccles deals with the burning question of "Ionic Values." The peculiar action and immense possibilities of this interesting class of apparatus are dealt with by him in so compendious and masterly a fashion as to render his monograph of the highest possible value. Amongst the other technical articles we find one on the "Inductance, Capacity and Natural Frequency of Aerials," by Prof. G. W. O. Howe; whilst Dr. E. W. Marchant gives an up-to-date summary of the phenomena and principles which form the basis of the theory known as that of the "Heaviside Layer."

On the general side there are some stirring tales of wireless heroism, which have been collated by the editor, and Mr. Alfred Noyes, in the "Wireless Drama," gives one of his thrilling narratives of wireless achievements at sea, together with a short poem.

The book is well illustrated by photographs, including some of aircraft wireless sets, and there is also a useful calendar. The book, bound in blue cloth, is published by Wireless Press, Ltd., Marconi House, Strand, W.C., at 3s. 6d. net.



UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

Royal Naval Air Service.

Admiralty, August 7th.

Lieut.-Comdr. (Temp.)—E. Childers, D.S.C., to "President"; July 27th. Flight Sub-Lieuts. (Temp.)—W. H. Mackenzie, promoted to Flight-Lieut. (Temp.), seniority June 30th; J. A. Glen and H. F. Beamish, both specially promoted to Flight-Lieuts. (Temp.) for meritorious war service, seniority August 5th.

O.S. (R.N.V.R.)—L. E. Forman, promoted to Flight Officer (temp.), seniority July 29th.

P.O. Teleg.—J. R. Wolley, V. H. Wicks, A. J. Brister, F. W. Wrench, G. W. Benfield, M. J. Golightly, and W. J. Burley, all advanced to rank of Act.-Wt. Officer (2nd grade), seniority July 20th.

The following Prob. Flight Officers (Temp.) have been promoted to Flight Sub-Lieuts. (Temp.), seniority as stated:—E. E. Beale, R. C. Tyler, and S. H. Lloyd; May 19th; E. D. Abbott, A. T. Wood, H. B. Brearley, and G. E. Siedle; June 4th; H. F. Potter, F. H. Pratchett, R. D. Clive, G. E. C. Howard, and J. D. Grant; all June 19th. C. R. R. Hickey, J. H. Winn, G. A. Flavelle, F. C. Lewis, G. Waugh, J. G. Manuel, E. S. Campbell, A. V. Evans, L. H. G. Gillespie, H. S. Broughall, M.C., T. A. Warne-Browne, L. C. Beaver, and S. A. Bowyer, all July 4th.

The following have been entered as Prob. Flight Officers (Temp.), seniority as under:—W. Adams and C. W. Lambert; July 23rd; F. H. Bell and A. G. Warner; August 13th.

F. A. Whippy entered as Prob. Observer Officer (Temp.), seniority August 13th.

Temp. commissions as Lieut. (R.N.V.R.) have been granted to D. M. S. Watson, F. H. Illingworth, A. H. Dungay, and W. A. Powell, all seniority August 6th.

Admiralty, August 8th.

Lieut.-Comdr., R.N.V.R. (Temp.)—R. A. Chalmers, graded as Act.-Squadron Comdr. (Temp.), seniority August 6th.

R. H. Abel, A. R. Carbis, and C. K. Osborne, all entered as Prob. Flight Officers (Temp.), seniority August 13th.

Admiralty, August 10th.

S.B.A. J. Hodgson, entered as Prob. Ob. Officer (Temp.), seniority Aug. 16th. R. W. Peat, entered as Prob. Ob. Officer (Temp.), seniority Aug. 13th.

F. W. Castle, N. Rayston and P. L. John-Gardner, all entered as Prob. Flight Officers (Temp.), seniority July 16th.

S. H. Page, granted a temp. commission as Lieut. (R.N.V.R.), seniority Aug. 8th.

Admiralty, August 11th.

The following Prob. Flight Officers have been promoted to rank of Flight Sub-Lieut., seniority as stated: H. B. Kerruish; April 27th. E. A. G. Robinson and N. R. Harben; May 11th. J. A. Cole; May 12th. J. W. Simpson, D. F. Murray and E. G. A. Eyre; May 27th. A. A. Bishop, J. A. S. Wright and J. L. A. Rossington-Barnett; June 11th. E. Sturman; June 12th. H. P. Guard, J. C. Grant, J. E. Greene, R. D. Smith, A. M. Alexander; June 26th. V. G. Austen, L. R. Knowles, H. H. S. Fowler, O. E. Worsley, C. H. Pownall, A. G. Hodgson and E. W. Coveney; June 27th. D. M. Briden, J. W. P. Amos, H. J. Emery, E. L. McLeod and A. T. Gray; July 11th.

Prob. Flight Sub-Lieuts. R. Tyzack and A. L. Rimer both confirmed in rank. Flight-Lieut. (Temp.) O. A. Butcher granted rank of Acting Flight-Comdr., seniority Aug. 10th.

A.B. (R.N.V.R.) H. A. Patey and F. E. Storey both entered as Prob. Flight Officers (Temp.), seniority respectively July 31st and Aug. 5th.

O.S. (R.N.V.R.) H. P. D. Lane entered as Prob. Flight Officer (Temp.), seniority Aug. 19th.

L. Sergt. (Inns of Court O.T.C.) N. H. N. Fletcher entered as Prob. Flight Officer (Temp.), seniority July 31st.

W.O. (2nd grade) H. A. Saunders promoted to Lieut., R.N.V.R. (Temp.), seniority Aug. 8th.

Air-Craftsman. (2nd) A. J. W. Giles entered as Lieut., R.N.V.R. (Temp.), seniority Aug. 16th.

J. C. Isaacs granted a temp. commission as Lieut. (R.N.V.R.), seniority Aug. 9th.

Royal Flying Corps (Military Wing).

London Gazette Supplement, August 7th.

The undermentioned appointments are made:—

Flight Commanders.—From Flying Officers.—Capt. J. Everidge, Yeo, (T.F.); July 17th. Lieut. O. Stewart, Middx. R. (T.F.), and to be Temp. Capt. whilst so employed; July 19th. Temp. Lieut. H. M. Ferreira, Gen. List, and to be Temp. Capt. whilst so employed; July 21st. Temp. Capt. J. Leacroft, Gen. List; and to be Temp. Capt. whilst so employed; Temp. Lieut. A. E. Charlwood, Gen. List, Temp. and Lieut. E. Mannock, R.E.; July 22nd. and Lieut. P. G. Taylor, S.R.; July 23rd.

Flying Officers.—Temp. 2nd Lieut. H. E. Sheppard, Gen. List; May 27th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—R. P. Pohlmann; July 14th. J. W. Wallwork; July 15th. F. W. Higgins, F. G. Quigley, W. C. V. Higginson; July 16th. E. F. Worthington, V. W. Burgess; July 19th.

Flying Officers (Observers).—Capt. V. Millard, Essex R., S.R., and to be sec'd.; April 5th, 1916. Temp. 2nd Lieut. (on prob.) A. T. Rose, Gen. List, and to be confirmed in his rank; June 19th. Lieut. S. H. Short, Canadian Art. (July 22nd, seniority July 4th).

Assistant Instructors in Gunnery.—(Graded as Equipment Officers, 3rd Class).—2nd Lieut. (Temp. Lieut.) G. M. F. Prynne, Bord. R., and to be sec'd.; and Lieut. C. O. Wright, R. Lanc. R., S.R., and to be sec'd.; Temp. 2nd Lieut. (on prob.) W. H. M. Groom, Gen. List, and to be confirmed in his rank; Temp. 2nd Lieut. T. J. Stannage, R. Ir. Rif., and to be transferred to the R.F.C., Gen. List; Temp. 2nd Lieuts. (on prob.) Gen. List, and to be confirmed in their rank:—W. Allan, D. P. Glazer, R. Davis, Lieut. E. A. Horan, Otago R., N.Z.E.F.; July 22nd.

Equipment Officers, 2nd Class.—Temp. 2nd Lieut. (Temp. Lieut.) F. J. Cooke, Gen. List; and Lieut. W. F. C. Nason, S.R., from the 3rd Class, and to be Temp. Lieut. whilst so employed; June 28th.

3rd Class.—Temp. 2nd Lieut. (on prob.) E. S. H. Corbett, Gen. List, and to be confirmed in his rank; June 4th. Lieut. E. H. Morris, A.S.C., S.R.; July 22nd.

Experimental Officer, 1st Class.—(Graded as an Equipment Officer, 1st Class).—Temp. Lieut. D. P. Geddes, Gen. List, from an Equipment Officer, 2nd Class, and to be Temp. Capt. whilst so employed; July 6th.

General List.—To be Temp. 2nd Lieuts. (on prob.).—The Hon. R. Westenra, late 2nd Lieut., Irish Guards; June 19th. A. E. Marriott; July 22nd. H.

Terry, from acting Petty Officer, R.N.A.S.; July 26th. P. V. Davies; July 27th.

Memorandum.—Temp. 2nd Lieut. (acting Lieut.) C. A. Mercer, Training Reserve, relinquishes his acting rank and is transferred to R.F.C., Gen. List; May 24th.

Supplementary to Regular Corps.—The relinquishment of his commission by 2nd Lieut. M. V. Morgan, notified in the Gazette of Feb. 10th, is cancelled. The following to be 2nd Lieuts. (on prob.):—R. B. Clark, E. W. Percival; Feb. 13th. D. McAlary; Feb. 18th. R. De L. Stedman; Feb. 21st.

The following appointments are made:—

Flying Officers.—Temp. 2nd Lieut. (on prob.) N. B. Birkett, Gen. List, and to be confirmed in his rank; July 19th. The date of seniority of Lieut. H. D. Williams, S.R., is May 5th, 1916, and not as in Gazette of May 10th.

Flying Officers (Observers).—Temp. Lieut. R. P. M. Whitham, North'd Fus., and to be transferred to Gen. List; March 13th, seniority January 17th (substituted for notification in Gazette of April 2nd).

July 23rd.—2nd Lieut. J. St. G. George, N. Staff. R., S.R., seniority Dec. 7th, 1916, and to be sec'd.; Temp. Lieut. W. V. Hunt, A.S.C., seniority March 15th, and to be transferred to R.F.C., Gen. List; 2nd Lieut. S. J. Leete, Wor. R. (T.F.), seniority March 27th, and to be sec'd.; Temp. 2nd Lieut. P. N. Hoyle, Leic. R., seniority April 3rd, and to be transferred to R.F.C., Gen. List; Temp. 2nd Lieut. C. U. Geidt, Cam'n. Highs., seniority April 13th, and to be transferred to R.F.C., Gen. List; Temp. 2nd Lieut. T. M. Goldon, A.S.C., seniority April 20th, and to be transferred to R.F.C., Gen. List; Temp. Lieut. F. W. Thomas, R.E., seniority April 22nd.

Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—G. B. Robeson; July 10th, seniority May 10th. N. J. Dakers; July 23rd, seniority May 10th.

Temp. 2nd Lieut. (on prob.) H. Rowbotham, Gen. List; Temp. 2nd Lieut. V. W. Pearson, Oxf. and Bucks L.I., and to be transfd. to R.F.C., Gen. List (July 19th, seniority March 2nd). 2nd Lieut. (actg. Lieut.) N. Field, Manch. R. (T.F.), to relinquish his actg. rank, and to be sec'd.; (July 20th, seniority March 18th). Lieut. A. Firth, York and Lanc. R. (T.F.), and to be sec'd.; July 19th, seniority May 4th. Lieut. J. H. Kirk, Canadian Gen. List; July 20th, seniority May 31st.

July 19th, seniority June 3rd.—Lieut. W. K. MacNaughton, Canadian Gen. List; Lieut. A. H. Thompson, Canadian Inf.; Lieut. J. S. Godard, Canadian Engs.; Lieut. J. W. Price, Canadian Railway Troops.

Memorandum.—Actg. Sergt. Major J. McDonald, from R.F.C. to be 2nd Lieut. for duty with R.F.C.; June 6th. (Substituted for notification in Gazette of July 2nd.)

The following appointments are made:—

Wing Commander.—Capt. (Temp. Maj.) A. J. L. Scott, Yeo, (T.F.), from a Sqn. Comdr., and to be Temp. Lieut.-Col. whilst so employed; July 22nd.

Flight Comds.—From Flying Officers, and to be Temp. Capts. whilst so employed:—2nd Lieut. A. L. Macfarlane, S.R.; July 26. Lieut. C. S. Morice, Wor. R.; July 27th.

Flying Officers.—2nd Lieut. F. S. Symondson, Yeo, (T.F.), from Welsh R. (T.F.), and to be sec'd.; May 29th. Temp. Lieut. C. V. Clayton, Gen. List, from a Flying Officer (Observer), seniority July 8th, 1916. Temp. Lieut. S. Evans, S. Staff. R.; June 23rd. 2nd Lieut. L. H. Browning, R.A., from a Flying Officer (Observer); June 27th, seniority May 17th, 1916. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—L. P. Roberts; June 29th. J. W. Schofield, Lieut. H. L. Polson, Canadian Mach. Gun Corps; June 30th. Capt. R. H. P. Miers, Yeo, (T.F.), from Temp. Maj., Welsh R. (T.F.), and to be sec'd.; July 1st. 2nd Lieut. (Temp. Lieut.) G. H. Pitt, Yeo, (T.F.), and to be sec'd.; July 2nd. Temp. 2nd Lieut. (on prob.) C. J. Howson, Gen. List, and to be confirmed in his rank; July 3rd. Temp. Maj. A. C. E. S. Bowlby, attd. Leins. R., and to be transfd. to R.F.C., Gen. List; July 15th. Temp. 2nd Lieut. W. A. McMichael, R. Scots, and to be transfd. to R.F.C., Gen. List; 2nd Lieut. S. C. P. Slattery, Oxf. and Bucks L.I., and to be sec'd.; 2nd Lieut. G. G. Walker, N. Lan. R., and to be sec'd.; Temp. 2nd Lieut. (on prob.) C. E. Preece, Gen. List, and to be confirmed in his rank; July 17th. 2nd Lieut. (on prob.) W. H. Falkner, S.R.; Lieut. V. B. Persse, Canadian A.S.C.; July 20th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—H. E. A. Waring, W. Smallwood; 2nd Lieut. C. W. Busk, M.C., Suff. R., from a Flying Officer (Observer), seniority July 3rd, 1916; Temp. 2nd Lieuts. (on prob.), Gen. Lists, and to be confirmed in their rank:—L. V. Labrow, P. G. Shellington; July 21st. 2nd Lieut. (on prob.) A. A. Kennedy, S.R.; Temp. 2nd Lieut. (on prob.) H. L. Bluck, Gen. List, and to be confirmed in his rank; July 22nd.

Flying Officers (Observers).—Temp. Lieut. J. M. Bright, Gen. List; May 30th, seniority Jan. 28th. Temp. Capt. W. E. B. Barclay, M.C., Gen. List; July 6th, seniority April 18th. Temp. Lieut. K. Wallace, Gen. List (July 14th, seniority April 23rd).

Equipment Officers, 1st Class.—From the 2nd Class, and to be Temp. Capts. whilst so employed:—Temp. Lieut. F. J. Baker, Gen. List; Lieut. C. H. Morgan, S.R.; 2nd Lieut. (Temp. Lieut.) L. Bawn, S.R. Temp. Lieuts., Gen. List:—J. H. B. Burgess, W. S. Hammond, W. E. Smith; July 1st. G. F. F. Collender; July 25th. 2nd Class—From the 3rd Class, and to be Temp. Lieuts. whilst so employed:—2nd Lieut. R. H. Bright; June 26th. 2nd Lieut. V. Stranders, T.F. Res.; 2nd Lieut. T. M. Wilson, S.R.; July 1st. 3rd Class—Temp. Qmr. and Hon. Lieut. A. A. Rowe, Gen. List; 2nd Lieut. J. C. R. Watson, High. L.I. (T.F.), and to be sec'd.; June 1st. Temp. 2nd Lt. (on prob.) S. Borrett, Gen. List, and to be confirmed in his rank; July 21st.

General List.—Lieut. W. E. B. Barclay, from R.N.V.R., to be Temp. Capt.; July 6th, seniority April 18th. Sub-Lieuts., from R.N.V.R., to be Temp. Lieuts.:—J. M. Bright; May 30th, seniority Jan. 28th. K. Wallace; July 14th, seniority April 23rd.

Supplementary to Regular Corps.—2nd Lieut. (on prob.) E. E. Blackall resigns his commission; August 9th. 2nd Lieut. (on prob.) H. S. Jackson is placed on the retired list on account of ill-health; August 9th.

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General List (R.F.C.).—(Cadets to be Temp. 2nd Lieuts. (on prob.):—E. C. Dickens; May 10th. N. U. Harvey; June 7th. G. D. H. Ross; July 7th. J. Adamson, J. M. Allen, R. J. Broad, T. Colvill-Jones, F. S. Coates, A. G. Earle, A. J. Haines, H. Harker, E. C. Hill-Clarke, H. L. Holland, W. Hughes, F. F. Keen, V. Legge, J. S. Macaulay, J. C. MacLennan, R. I. Metcalfe, R. Messulam, H. A. Potter, C. Ross, P. T. Shepherd, R. H. Speight, B. S. W. Taylor, P. W. Woodhouse; July 14th. H. D. Barbour, H. T. Noble, R. T. Shepherd, J. F. R. Stobie; July 16th. D. S. Anderson, D. C. Anderson, G.

Anderson, H. C. Aylmer, R. J. Backhouse, G. G. Bailey, J. Baird, L. F. Barton, H. E. Barwell, H. I. T. Beardsworth, J. W. Beskeen, A. G. Bewes, F. V. Bird, D. C. Black, J. M. Black, H. H. Bothamley, E. H. Boyd, D. R. Brayshaw, H. F. Broadribb, R. B. Brookes, F. G. Brown, F. F. H. Bryan, J. Brydone, H. E. W. Bryning, J. Buckley, J. Buckley, R. F. Buick, E. R. Bullimore, J. Bursey, G. Cameron, A. B. Care, G. F. Carefoot, J. D. Cavey, G. K. Chadwick, H. L. Chandler, C. D. Chapman, W. T. Chard, G. A. Clapham, P. J. Clawson, T. C. Clifford, A. J. Cobb, A. E. P. Cole, J. A. Dear, C. C. Connochie, H. D. Crisp, W. T. Crombie, A. R. Cross, F. Daniell, D. C. Davies, F. W. C. Davies, W. B. Day, L. A. W. Deane, A. C. McC. De Fleury, A. De Tessier, C. P. Donnison, T. J. Donovan, A. Duncan, J. D. Egan, R. V. Elwood, R. B. Esdale, D. L. N. Eskell, J. Faulkner, C. J. Fitzgibbon, H. E. Ford, E. M. Forsyth, R. Foster, R. Foster, L. N. Franklin, C. V. Gardner, H. W. Gardner, C. Gavaghan, R. F. Glazebrook, R. W. Godfrey, A. Goodwin, L. Gowell, J. F. Greenwood, H. L. Groom, G. A. Hadley, J. H. Hartley, H. R. Hern, A. H. Herring, A. C. Hine, L. T. Hockley, W. K. Holmes, J. L. Holt, H. B. Homan, W. J. Hooke, T. F. Howlett, H. Hutchins, A. K. P. Ivey, F. R. Johnson, J. H. Johnson, R. S. Johnston, S. N. Jones, J. A. C. Kempe-Roberts, D. Kennedy, J. G. Kennedy, W. F. King, W. G. Kingdon, V. F. S. Kirkpatrick, F. R. Kitton, G. A. Lamburn, W. B. Lane, A. Lawlor, R. G. Lawson, R. J. Layard, R. M. Lees, S. T. Liversedge, F. Lockwood, V. A. Lodge, V. F. Long, G. N. McBlain, H. De C. McDiarmid, H. O. McDonald, J. M. McEntegart, R. J. P. McIntosh, M. S. Mackay, W. C. Mackie, A. W. Macnamara, A. M. McTavish, J. G. Mair, A. J. Maitland, H. Mason, F. J. Milligan, J. M. Milne-Henderson, R. G. G. Mitchell, D. Molyneux, T. C. K. Moore, J. W. Muir, C. F. Muirhead, R. O. Mullinger, F. D. Nevin, W. G. Nicholas, L. W. Norman, E. O. Ockerbury, J. T. Paine, C. F. Palmer, N. E. Parkes, W. Paterson, D. W. Paton, G. G. W. Petersen, J. E. Philpott, R. C. Pigott, K. W. D. Pope, W. F. C. Powell, H. N. J. Proctor, D. C. Provan, G. E. Race, J. L. Racionzer, A. J. Rawlins, E. L. Rcworth, F. G. A. Robinson, L. Roebuck, E. C. Rogers, R. L. MacK. Ross, A. R. Russell, W. Q. N. Richardson, P. W. Rylands, L. J. Sanderson, R. T. Sault, G. S. Scott, B. V. Seaward, W. W. Sharpe, B. E. Sharwood-Smith, E. W. Shaw, T. G. Shaw, J. C. P. Sibbering, R. Siddall, H. S. Sinclair, C. D. Skinner, T. F. X. Smallwood, S. H. Smith, C. P. Stewart, C. G. Stevens, H. P. Stuttard, J. S. Suckling, O. B. Swart, A. C. Tallent, E. Tasker, C. Thornton, P. W. J. Tinson, F. J. Truss, D. C. Tucker, C. G. Tysoe, E. R. Varley, W. S. Walker, A. Waterworth, N. B. Wells, G. H. Welsh, E. Westmoreland, A. F. White, W. W. White, P. Whiteley, W. E. M. Whittaker, H. L. Whittome, H. Wild, G. J. Wilde, V. F. Wilkins, A. E. G. Williams, H. H. Williams, W. K. Wilson, J. L. Wingate, J. Winter, H. L. Wren, J. E. Yates, G. V. Yeabsley, J. C. Young; July 19th. M. A. V. Pumfrey, N. A. C. Williams; July 23rd. H. A. Aliback, C. M. Davis, W. E. Giffard, G. S. Holloway, H. Hoyle, C. H. Jenkinson, A. S. McGuffie, G. W. White; July 24th.

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The following appointments are made:—

Flying Officers.—Lieut. B. Weis, A.S.C., S.R., from Temp. Capt., A.S.C., and to be sec'd.; 2nd Lieut. P. W. Spurr, R. Berks, R., S.R., from Flying Officer (Observer), seniority Feb. 23rd, 1916; Temp. 2nd Lieuts. (on prob.) Gen. List, and to be confirmed in their rank:—F. H. Davies, K. Don; July 21st. S. R. Garnar, S. H. Preston; July 23rd.

Flying Officers (Observers).—2nd Lieut. (Temp. Lieut.) V. C. Roberts, E. York R., and to be sec'd.; July 7th, seniority May 23rd, 1916 (substituted for the notification in the *Gazette* of July 28th). The initials of Capt. E. C. Sheppard, Canadian Infantry, are as now described, and not as in the *Gazette* of June 29th.

Adjutant.—Temp. Lieut. R. H. Peto, Gen. List, and to be Temp. Capt. (without the pay and allowances of that rank) whilst employed, as Adj't.; May 15th.

General List.—Temp. 2nd Lieut. L. E. Francis, R. W. Surr. R., to be Temp. Lieut. whilst serving with R.F.C.; July 1st.

General List (R.F.C.).—Temp. 2nd Lieuts. (on prob.) to be confirmed in their rank:—J. C. Barrett, P. R. Cann, D. H. Montgomery, J. B. Sanderson, A. Champion.

London Gazette Supplement, August 10th.

The following appointments are made:—

Flying Officers.—2nd Lieut. (on prob.) R. B. Clarke, S.R.; 2nd Lieut. (on prob.) E. W. Percival, S.R.; (April 3rd). 2nd Lieut. (on prob.) R. de L. Stedman, S.R.; (April 21st). 2nd Lieut. (on prob.) D. McAlary, S.R.; (May 30th). Lieut. R. C. St. J. Dix, Lond. R. (T.F.), from M.G.C.; June 22nd. Lieut. C. E. Reynolds, Lond.R. (T.F.), and to be sec'd.; Lieut. W. McKay, Sea. Highs., from a Flying Officer (Ob.), seniority Mar. 11th, 1916; June 23rd. 2nd Lieut. G. C. Gardener, R. Ir. R., from a Flying Officer (Ob.); June 24th, seniority Oct. 16th, 1916. Temp. 2nd Lieut. W. G. Duthie, Garr. Bn., Sea. Highs., and to be transfd. to R.F.C., Gen. List; Temp. 2nd Lieut. A. P. Adams, Gen. List, from a Flying Officer (Ob.), seniority Sept. 6th, 1916; June 25th. and Lieut. R. Beresford, S. Staff. R., S.R., and to be sec'd.; June 27th. Temp. 2nd Lieut. H. C. Blythe, Res. Regts. of Cav., and to be transfd. to R.F.C., Gen. List; Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—R. W. Thrower, T. H. Holiday, R. N. H. Hughman, J. J. A. Thompson; July 20th.

Group Instructor in Gunnery (graded as a Flight Commander).—2nd Lieut. (Temp. Capt.) A. P. Davidson, High. L.I., from an Instr. in Gunnery (graded as an Equipment Officer, 1st Cl.), and to retain his temp. rank whilst so employed, vice Lieut. (Temp. Capt.) M. R. N. Jennings, S.R., who reverts to Flying Officer (seniority May 20th, 1916, and relinquishes his temp. rank); July 28th.

Instructor in Gunnery (graded as an Equipment Officer, 1st Class).—Lieut. E. Parker, E. Lan. R., S.R., from an Asst. Instr. in Gunnery (graded as an Equipment Officer, 3rd Cl.), and to be Temp. Capt. whilst so employed, vice 2nd Lieut. (Temp. Capt.) R. C. Hardie, D. of Corn. L.I., S.R., who reverts to Flying Officer (seniority Jan. 28th) and the rank of Temp. Lieut.; July 27th.

Assistant Instructors in Gunnery (graded as an Equipment Officer, 3rd Class from Flying Officers (Observers)).—2nd Lieut. (Temp. Lieut.) A. W. Phillips, M.C., R. Fus., Spec. Res.; Lieut. L. H. Scott, M.C., Midd'x. R. (T.F.); July 13th.

Balloon Company Commanders (graded as a Squadron Commander).—Temp. Capt. H. D. Jensen, M.C., Gen. List, from a Balloon Co. Comdr. (graded as a Flight Comdr.), and to be Temp. Maj. whilst so employed; July 18th. *Graded as a Flight Commander*.—Lieut. (Temp. Maj.) E. B. Broughton, S.R., reverts from a Balloon Co. Comdr. (graded as a Sqdn. Comdr.) at his own request, to relinquish his temp. rank and to be Temp. Capt. whilst so employed; July 23rd, seniority July 5th, 1916.

Balloon Commander (graded as a Balloon Officer).—Temp. Lieut. J. A. Stevenson, Gen. List, from a Balloon Officer; May 30th.

Balloon Officers.—2nd Lieut. D. R. Solomon, R.F.A., S.R.; 2nd Lieut. D. A. J. Prendergast, R.F.A., S.R.; July 24th.

Special Appointment (graded as Equipment Officer, 1st Class).—Temp. Lieut. R. de Sartigny, Gen. List, from the 2nd Cl., and to be Temp. Capt. whilst so employed; June 9th.

Equipment Officers, 1st Class.—From the 2nd Cl., and to be Temp. Capt. whilst so employed:—Temp. Lieut. A. W. Empson, Gen. List; June 9th. Temp. Lieut. L. G. T. Sedgwick, Gen. List; 2nd Lieut. (Temp. Lieut.) A. B. D. Lang, S.R.; July 6th. 2nd Cl.—Lieut. C. G. Hetherington, S.R., from the 3rd Cl.; June 5th. From the 3rd Cl., and to be Temp. Lieuts. whilst so employed:—2nd Lieut. J. H. Fletcher, S.R.; Temp. 2nd Lieut. C. Rayner, Gen. List; 2nd Lieut. W. D. Scott, S.R.; Temp. 2nd Lieut. A. W. Barnett, Gen. List; Temp. 2nd Lieut. E. M. Cashmore, Gen. List; Temp. 2nd Lieut. W. R. P. Allen, Gen. List; 2nd Lieut. T. Bell; July 6th. 3rd Cl.—Temp. 2nd Lieut.

(on prob.) T. J. Price, Gen. List, and to be confirmed in his rank; June 1st. Maj. J. W. F. W. Ashby, R. Suss. R. (T.F.); July 18th. Temp. 2nd Lieut. F. B. Palmer, Gen. List, from a Flying Officer (Ob.); July 24th.

General List.—To be Temp. 2nd Lieuts. (on prob.):—T. E. Morton; July 18th. C. J. F. Kynaston, L. C. G. Gemson, A. E. Millson, H. C. King, W. M. Sercombe, H. Howard; July 27th.

Supplementary to Regular Corps.—2nd Lieut. E. M. V. Fielding resigns his commn. to resume medical studies in Canada, and is granted the hon. rank of 2nd Lieut.; Aug. 11th. 2nd Lieuts. (on prob.) are confirmed in their rank:—P. Rawlinson, A. C. Nutter, G. G. Mackay, E. J. Stephens, R. H. Kirkaldy, D. C. Barrington, C. G. Crane, F. P. M. Court, J. D. E. Troop, W. A. Leslie, L. M. Hill, G. W. Curtis, A. G. Youdale, P. F. West (previously described as P. J. West), C. H. Lick.

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Military Wing.—The following appointments are made:—
Staff Officers, 2nd Class (graded as a Brigade Major).—Lieut. (Temp. Capt.) W. A. A. Chauncy, York. R., from an Adj't., R.F.C.; June 22nd.

3rd Class (graded as Staff Captains).—Temp. Capt. F. W. Prendergast, Leins. R.; Capt. R. D. Law, W. York. R. (T.F.), and to be sec'd.; Temp. Capt. J. Hamilton, attd. E. Kent R., and to be transfd. to R.F.C., Gen. List; June 22nd.

Squadron Commanders.—From Flight-Comdrs., and to be Temp. Majors whilst so employed: Temp. Capt. F. J. Powell, M.C., Gen. List; May 16th. Lieut. (Temp. Capt.) C. M. B. Chapman, M.C., E. Kent R.; July 20th.

Special Appointments (graded as a Sqdn. Comdr.).—Capt. (Temp. Major) T. G. Hetherington, Hrs., from a Sqdn. Comdr., and to retain his temp. rank whilst so employed; June 22nd. *Graded as Flight-Commanders*.—From Flight-Comdrs.:—July 15th: Temp. Capt. W. E. G. Murray, Gen. List; Temp. Capt. S. S. Halse, Gen. List; 2nd Lieut. (Temp. Capt.) S. N. Cole, S.R., and to retain his temp. rank whilst so employed.

Flying Officers.—Temp. 2nd Lieut. A. W. Newham, York. and Lanc. R. May 31st. Temp. 2nd Lieut. (on prob.) J. Dymond, Gen. List, and to be confirmed in his rank; July 20th. 2nd Lieut. H. D. Luxton, S.R.; July 21st. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: J. E. Child, C. F. Toogood, K. M. Pennington; July 22nd. J. B. Corcoran; July 24th.

Assistant Instructors in Gunnery (graded as Equipment Officers, 3rd Class).—Temp. 2nd Lieut. (on prob.) W. B. Smellie, Gen. List, and to be confirmed in his rank; July 20th. Lieut. J. T. M. Hill, Can. Inf.; Temp. 2nd Lieut. G. E. Barnett, Gen. List, from a Flying Officer (Ob.); 2nd Lieut. R. Buck, S.R., from a Flying Officer; Temp. 2nd Lieut. (on prob.) H. G. Wood, Gen. List, and to be confirmed in his rank; Temp. 2nd Lieut. (on prob.) G. M. Johnstone, Gen. List, from a Flying Officer, and to be confirmed in his rank; July 21st. 2nd Lieut. (Temp. Lieut.) E. G. Seth-Smith, E. Surr. R., S.R., from a Flying Officer; Temp. Lieut. H. Bristow, M.G. Corps, and to be transfd. to R.F.C., Gen. List; Temp. 2nd Lieut. (on prob.) P. Brindle, Gen. List, and to be confirmed in his rank; July 30th.

Special Appointments (graded as Park Commanders, and to be Temporary Majors whilst so employed).—Lieut. (Temp. Capt.) A. E. Snape, S.R., from an Equipment Officer, 1st Cl.; Lieut. A. E. Oxley, S.R., from an Equipment Officer, 3rd Cl.; June 22nd.

Equipment Officer, 1st Class.—Lieut. R. A. Courtney, S.R., from the 2nd Cl., and to be Temp. Capt. whilst so employed; June 22nd.

Special Appointments (graded as Equipment Officers, 1st Class).—From Equipment Officers, 2nd Cl., and to be Temp. Capt. whilst so employed: Lieut. V. F. P. Bryce, S.R.; Lieut. P. P. Eckersley, S.R.; June 22nd. *Graded as Equipment Officers, 2nd Class*.—2nd Lieut. (Temp. Lieut.) R. A. W. Collet, S.R., from an Equipment Officer, 2nd Cl., and to retain his temp. rank whilst so employed. From Equipment Officers, 3rd Cl., and to be Temp. Lieuts. whilst so employed: 2nd Lieut. F. J. Game, S.R.; 2nd Lieut. F. Ashworth, S.R.; June 22nd. *Graded as an Equipment Officer, 3rd Class*.—Temp. 2nd Lieut. C. W. Hogg, Gen. List, from an Equipment Officer, 3rd Cl.; June 22nd.

Equipment Officers, 3rd Class.—Lieut. O. S. Waymouth, Ind. Army Res. of Officers, from a Flying Officer (Ob.); May 30th. Temp. 2nd Lieut. (on prob.) S. E. W. Taylor, Gen. List, and to be confirmed in his rank; July 9th.

General List.—G. H. Patey to be Temp. 2nd Lieut. (on prob.); Aug. 1st.

Supplementary to Regular Corps.—2nd Lieut. (on prob.) E. H. Acland resigns his commission; Aug. 12th. 2nd Lieuts. (on prob.) are confirmed in their rank: P. Avery, E. B. Hedley, B. H. Davies, J. A. M. Fleming, A. E. Hempel, H. T. Leslie, H. D. Luxton, E. C. Macdonnell, J. A. MacKay, F. C. Penny, E. W. Powell, H. W. Pollock, H. D. B. Snelgrave, W. H. Stirling, W. D. Bostock, C. Cox, E. J. Head, D. McAlary, G. S. Wilkinson.

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The following appointments are made:—
Staff Officers, 1st Class (graded for purposes of Pay as an A.A.G.).—Temp. Capt. F. R. Hedges, Gen. List, from the 2nd Cl., and to be Temp. Lieut.-Col. whilst so employed; June 22nd.

2nd Class (graded for purposes of Pay as a Brigade Major).—Major A. R. Martin, T.F. Res., from Adj't., R.F.C., vice Temp. Capt. (Temp. Lieut.-Col.) F. R. Hedges, Gen. List; June 22nd.

3rd Class (graded for purposes of Pay as a Staff Captain).—Lieut. (Temp. Capt.) M. Nicholson, R.F.A. (T.F.), from Adj't., R.F.C.; June 22nd.

Flight-Commander.—2nd Lieut. (Temp. Lieut.) T. E. Salt, R. War. R. (T.F.), from a Flying Officer, and to be Temp. Capt. whilst so employed; July 31st.

Flying Officers.—2nd Lieut. B. S. Smallman, R.F.A. (T.F.), and to be sec'd.; May 19th. 2nd Lieut. A. N. Dickson, R.G.A., S.R.; June 22nd. 2nd Lieut. W. A. Forsyth, R.A., from a Flying Officer (Ob.); June 29th, seniority June 19th, 1916. 2nd Lieut. (on prob.) S. L. J. Bramley, S.R.; 2nd Lieut. S. B. Collett, Durh. L.I. (T.F.), and to be sec'd.; July 20th. Temp. 2nd Lieut. E. H. Kann, Gen. List, from a Flying Officer (Ob.), seniority July 1st, 1916; July 21st. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: C. E. Abell, R. H. V. Chester, F. P. Galloway, F. W. Hainsby, L. H. Clemeton, E. Waterlow; July 21st. O. W. W. H. Meredith, E. W. Nicholson; July 22nd. H. W. Chatteray, G. G. Tomling, R. R. Bentley; July 23rd. Lieut. G. E. Wait, Can. Inf.; July 24th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: A. H. P. Pehrson, W. G. Whalley, I. H. Lawrence; Lieut. E. G. Hanlon, Can. Inf.; Temp. 2nd Lieut. J. P. Cox, Manch. R., and to be transfd. to R.F.C., Gen. List; 2nd Lieut. (on prob.) W. G. Stuart, S.R.; 2nd Lieut. (on prob.) D. S. Thompson, S.R.; July 24th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: W. M. Hirst, H. C. Cooke, W. F. G. March; July 24th. J. O. Priestley; July 25th. E. T. Mitchell E. E. Stock T. E. Wray, C. F. Risteen, J. McC. Lee; July 26th.

Flying Officers (Observers).—July 26th: 2nd Lieut. T. H. Uphill, R.F.A., S.R., seniority Mar. 16th. 2nd Lieut. C. R. H. Firth, R.A., seniority Mar. 22nd, and to be sec'd. 2nd Lieut. F. M. F. West, R. Muns. F. S.R., seniority April 1st, and to be sec'd. Temp. 2nd Lieut. A. A. Davis, British W. Indies R., seniority April 5th, and to be transfd. to Gen. List; Temp. Lieut. A. Swales, Army Pay Dept., seniority April 10th, and to be transfd. to R.F.C., Gen. List. *Balloon Company Commander (graded as a Flight-Commander)*.—2nd Lieut. (Temp. Lieut.) J. Mitchell, S.R., from a Balloon Co. Comdr. (graded as a Balloon Officer), and to be Temp. Capt. whilst so employed; July 28th.

Adjutant.—Temp. 2nd Lieut. (Temp. Lieut.) W. P. M. Newman, R.A., to be Temp. Capt. (without the pay or allowances of that rank) whilst so employed, and to be transfd. to R.F.C., Gen. List; July 6th.

Equipment Officers, 2nd Class.—Temp. Hon. Lieut. J. H. Smith, Gen. List, and to be Temp. Lieut. whilst so employed; Mar. 17th (substituted for notification in *Gazette* of May 7th); Temp. Lieut. H. J. Lister, Gen. List, from the 3rd Cl.; April 5th.

3rd Class.—2nd Lieut. W. E. Hughes, Leic. R., S.R., and to be sec'd.;

May 23rd. Temp. 2nd Lieut. (on prob.) N. G. Arnold, Gen. List, and to be confirmed in his rank; June 13th.

General List.—Capt. (Temp. Major) G. C. de Doombasle, Can. Inf., a Sqdn. Comdr., and to be Actg. Lieut.-Col. whilst employed as Comdt. of a School of Mil. Aeronautics; July 2nd.



AVIATION IN PARLIAMENT.

Officers from Overseas.

Mr. BILLING in the House of Commons on August 9th, asked the Under-Secretary of State for War whether, in view of the aptitude for aviation shown by Canadians, Australians, and South Africans, he will consider the advisability of encouraging rather than discouraging overseas men to qualify for admission into the Royal Flying Corps.

Mr. Macpherson: My hon. friend's suggestion is not borne out by the facts. The proportion of overseas men among the pilots of the Royal Flying Corps has always been large, and every encouragement is given to them. There are special officers in the Dominions selecting cadets.

Mr. Billing: Will the War Office make a definite statement that they will welcome volunteers from the overseas Forces for the purpose of training as fliers?

Mr. Macpherson: I hope that the answer to my hon. friend's question will get sufficient publication in the Colonies. Every encouragement is given to these men in the Dominions, where there are actually now special officers selecting cadets.

Air Services and Skilled Workers.

Mr. BILLING asked the Under-Secretary of State for War whether, in view of the need for expediting the output of aeroplanes, he will consider the desirability of facilitating transfers, rather than preventing them, of men who are of low medical category but who are skilled joiners, carpenters, mechanics, and other allied trades, to the Army Reserve for utilising their services in the aeroplane factories of this country?

Mr. Macpherson: If my hon. friend is referring to applications for release by the Ministry of Munitions, which have been refused as the men applied for were employed at their trade as military artificers, I would remind him that it is usually not possible to spare such men for return to civil employment.

Transfers to R.F.C.

Mr. BILLING on August 10th asked the Under-Secretary of State for War whether applications for transfer to the Royal Flying Corps are forwarded to and dealt with by the War Office, or whether the forwarding or the rejection of such applications rests entirely at the discretion of the officer commanding the regiment or cadet corps in which the applicant is serving?

Mr. Macpherson: They are dealt with by the War Office, and instructions as to whether applications should be forwarded or not are issued from time to time.

Mr. Billing: If a man applies to-day for transfer to the Royal Flying Corps, may he be assured that the commanding officer will forward that application to the War Office and that it will not be turned down by the commanding officer without reference to the War Office?

Mr. Macpherson: I cannot answer that definitely, but I know that in a great many cases that have come under my personal observation the applications have always been sent forward by the commanding officers.

Mr. Billing: In view of the reply given the other day that every encouragement was to be given to men to volunteer, will the hon. gentleman issue a circular making it compulsory upon commanding officers to forward, without comment, any application they receive?

Sir Tudor Walters: Will the hon. gentleman bear in mind the importance of allowing commanding officers an opportunity of expressing an opinion as to the suitability or otherwise of the applicants?

Mr. Macpherson: That, of course, is the basis of all these applications for transfer or promotion. I think that in every application the commanding officer must have the first say.

Mr. Billing: Is not the Selection Board a better judge of whether a man will make a suitable pilot than the commanding officer of an Infantry battalion?

Mr. Speaker: These questions are degenerating into a debate.

German Lists of British Losses.

Mr. BILLING asked the Under-Secretary of State for War whether his attention had been called to the reprint in British papers of German official statements giving not only a list of our air losses for various months, but the numbers and types of machines and the names of pilots; and how this German official statement compares with the British official statements?

Mr. Macpherson: Yes, Sir; and in the main, I understand, they have been substantially correct.

Mr. Billing: Has the hon. gentleman's attention been called to these published facts, and is it not a fact that the Germans not only give the names of the machines but the types and numbers and the names of the pilots, and that they do not tally with the British official report? Will he please say whether the German report is accurate or inaccurate according to our figures?

Mr. Macpherson: I said in answer to the question that the information

published from German sources that we had received in this country was, I understood, substantially correct.

Range-Finders.

Mr. BILLING asked the Under-Secretary of State for War whether any steps have been taken to convert the range dial of anti-aircraft guns and the fuse-punch registers from yards to metres or, alternatively, the range-finders to metres, so as to permit of some degree of accuracy being obtained by our anti-aircraft gunners on occasions of air raids over this country?

Mr. Macpherson: I am afraid I can add nothing to the reply which I gave to the hon. Member on a similar question on the 30th July last.

Mr. Billing: Will the hon. Gentleman take immediate steps, which could have been done two years ago, to have these range-finders marked in metres or the fuse punch altered from yards, because that is a very good reason why our guns are not accurate enough?

Mr. Macpherson: I do not know why my hon. friend goes out of his way to make a statement in reply to an answer I have just given, the reply being that no information of this sort could be published, and that no questions of this sort ought to be put.

Mr. Billing: Does not the hon. gentleman think that, in the interests of the public, attention should be called to this grave lack of efficiency in the Service?

Night-Landing Grounds.

Mr. BILLING asked the Under-Secretary of State for War what is the minimum distance from boundary to boundary from all points of the compass stipulated for in the selection of new night-landing grounds; whether this applies to those at present in use; whether he is aware of the unnecessary and often fatal risks that are being taken by practising night-flying on occasions of ground mists and fog; and whether he will give orders to prevent the recurrence of this?

Mr. Macpherson: The size of a night-landing ground depends very largely on its surroundings, and no definite size is laid down. This applies to those at present in use. The answer to the third part of the question is in the negative, and the fourth part does not, therefore arise.

Mr. Billing: May we assume that it is against orders for any commanding officer to order any pilot up for experimental or trial flights during ground mist or fog, and will the War Office issue an Order to that effect?

Mr. Macpherson: I have not come across any case where that has been done. I expressly stated in answering the first part that the answer is in the negative.

Accidents and Flying Pay.

Mr. BILLING asked the Under-Secretary of State for War for what period after an accident incapacitating a pilot does flying pay continue; also for what period after an accident does the flying of qualified observers continue?

Mr. Macpherson: The maximum period for which sick leave can be granted in each case is six months. The actual period depends upon the nature of the accident, and the condition of the pilot or observer.

Mr. BILLING: Will the hon. gentleman make a definite statement so that pilots and observers know where they stand? In some cases observers have their flying pay stopped although they are qualified to draw it.

Mr. Speaker: The hon. member is taking the opportunity to make statements and not to ask questions. This is the time for asking questions.

Disposal of Empty Packing Cases.

Mr. BILLING asked the Under-Secretary of State for War whether it is the practice to forward empty packing cases to a dépôt at Didcot; what action, if any, is taken when packing cases are found still to contain their original consignment; and whether he is aware that recently brand new air propellers discovered in these packing cases have been used to decorate the walls of the dépôt at Didcot?

Mr. Macpherson: The answer to the first part of the question is in the negative, but empty packing cases are no doubt occasionally sent. I think my hon. friend is probably referring to an incident which occurred early this year when two packing cases were forwarded to Milton, each containing a damaged and unserviceable propeller. The propellers were struck off charge, and the boss of one of them, which was found to be fit for use, was taken on charge in the usual way.

Pilot Officers' Leave.

MAJOR KERR-SMILEY asked the Under-Secretary of State for War whether the ferry pilot officers of the Royal Flying Corps stationed at Lympne had not had any leave for over a year; and if officers stationed at home are debarred from having leave?

Mr. Macpherson: No, Sir. I understand that leave is granted to these officers when their services can be spared.

with a British airman over the German lines, but landed safely in a meadow and was taken to hospital."

The Baron von Richthofen was last mentioned in German *communiques* on July 9th.

A German Observer Honoured.

THE Kaiser has bestowed the highest German war honour, the Order Pour le Mérite, on an aeroplane observer, Lieut. Baron von Pechmann. Pechmann, who is said to be the first observer to be so honoured, it is claimed has more than 400 battle flights to his credit.

Ferdinand and Zeppelins.

A STUTTGART telegram to the *Cologne Gazette* says that the King of Bulgaria inspected the Zeppelin dock at Friedrichshafen on August 9th, and afterwards, accompanied by the King of Wurtemberg and the two Princes, made a tour in a Zeppelin cruiser.

German Seaplane Over Holland.

A GERMAN biplane flew over Sas Van Gent on August 9th, going from the direction of Zeeland towards Flanders. It was fired at by the Dutch frontier guards. An aeroplane passing over Eindhoven in North Brabant was fired at by Dutch soldiers.

No Inquest on Raiders.

A NEW regulation under the Defence of the Realm Act provides that the Admiralty or Army Council may give directions as to the burial of the bodies of enemies killed in hostile operations, and no inquest shall be held on any body when such directions are given.

Aviation Causes a Fatality.

WHILE watching an aeroplane from an open window at Croydon Infirmary, on August 7th, an inmate, over 70 years of age, named William Day, fell out, and was killed on the asphalt pavement below.

French Aeroplanes v. Submarines.

STATISTICS published in Paris on August 10th announce that there were 17 engagements between seaplanes or dirigible airships and submarines. On the morning of August 8th the Naval Air Station at Corfu saw a large submarine, which was attacked with bombs and hastily disappeared.

Richthofen Wounded.

IN a despatch dated August 9th, Mr. Malcolm Ross, War Correspondent with the New Zealand Force in France says:—

"Prisoners captured state that the famous airman Richthofen received two bullet wounds in the head in combat

AIR WORK IN

THE ADVANCE.

"THE weather has been bad for flying men," writes Mr. Philip Gibbs to the *Daily Telegraph* from the War Correspondents Headquarters on August 2nd. "Impossible, one would say, looking up at the low-lying storm clouds. Yet on the day of battle our airmen went out and, baulked of artillery work, flew over the enemy's country and spread terror there. It was a flying terror which, when told in the barest words of these boys, is stranger than old mythical stories of flying horses and dragons on the wing. Imagine one of these winged engines swooping low over one as one walks along a road far from the lines, and above the roar of its engine the sharp crack of a revolver with a bullet meant for you. Imagine one of these birds hovering above one's cottage roof and firing machine-gun bullets down the chimneys, and then flying round to the front and squirting a stream of lead through the open door, and, after leaving death inside, soaring up into a rain cloud. That, and much more, was done on July 31st. These airmen of ours attacked the German troops on the march and scattered them, dropped bombs on their camps and aerodromes, flying so low that their wheels skirted the grass, and were seldom more than a few yards above the tree-tops. The narrative of one man begins with his flight over the enemy's country, crossing canals and roads as low as 30 ft., until he came to a German aerodrome. The men there paid no attention, thinking this low flier was one of theirs, until a bomb fell on the first shed. Then they ran in all directions panic stricken. The English pilot skinned round to the other side of the shed and played his machine-gun through the open doors, then soared a little and gave the second shed a bomb. He flew round and released a bomb for the third shed, but failed with the fourth, because the handle did not act quickly enough. So he split his bomb between the shed and a railway train standing still there. By this time a German machine-gun had got to work upon him, but he swooped right down upon it, scattering the gunners with a burst of bullets, and flew across the sheds again, firing into them at 20 ft. His ammunition drum was exhausted, and he went up to a cloud to change, and then came down actually to the ground, tripping across the grass on dancing wheels, and firing into the sheds where the mechanics were cowering.

"Then he tired of this aerodrome and flew off, overtaking two German officers on horses. He dived at them and the horses bolted. He came upon a column of 200 troops on the march, and swooped above their heads with a stream of bullets until they ran into hedges and ditches. He was using a lot of ammunition, and went up into a cloud to fix another drum. Two German aeroplanes came up to search for him, and he flew to meet them and drove one down so that



SIDE-WINDS.

To some men the faculty of organisation is a gift which is bestowed in such measure as to become almost second nature to them. It is such a desirable gift, too, in these times when many firms in the aircraft industry are expanding at a rate which makes it extremely difficult for factory organisation to be maintained at anything like efficiency when the one object which seems to swamp everything else is more and still more production. At the present moment we can put any firm finding itself in this position into touch with a trained engineer who, having accomplished valuable organising work for the Ministry of Munitions, now wishes to devote himself to fresh tasks of this nature helping along the war. He is a member of the Institutions of Mechanical and Automobile Engineers. It is an opportunity which will be interesting only to those firms who are on the lookout for the best men and know the value of them. We shall be pleased to forward any letters addressed to Organiser, care of the Editor of "FLIGHT," 44, St. Martin's Lane, W.C. 2.

BEARING the date of August comes the first number of *Aeromnia Magazine*, the house journal of Messrs. Hewlett and Blondeau, Ltd. As the latest of works magazines, its producers are to be complimented on the measure of success attending their efforts towards making their little paper a readable and instructive monthly. The literary contributions are all from the pen of those employed in the works and are far above that usually obtainable under such restricted conditions. Especially must we compliment "W. F. R." on the set of verses entitled "Germs of Greatness." They are in well-chosen words and have a rhythm that is haunting. As a whole, the *Aeromnia Magazine* is a very commendable production, and should go far to weld together those whose interests are so closely bound to the interests of the firm for

it crashed to earth. German soldiers gathered round it, and our fellow came down to them and fired into their crowd. A little lower he flew over a passenger train and pattered bullets through its windows, and then, having no more ammunition, went home.

"There was a boy of 18 in one of our aerodromes the night before the battle, and he was very glum because he was not allowed to go across the German lines next day on account of his age and inexperience. After many pleadings he came to his squadron commander at night in his pyjamas and said, 'Look here, Sir, can't I go?' So he was allowed to go, and set out in company with another pilot in another machine. But he soon was alone, because he missed the other man in a rain-storm. His first adventure was with a German motor-car with two officers.

"He gave chase, saw it turn into side roads, and followed. Then he came low and used his machine-gun. One of the officers fired an automatic pistol at him, so our boy thought that a good challenge and, leaving go of his machine-gun, pulled out his own revolver, and there was the strangest duel between a boy in the air and a man in a car. The aeroplane was 50 ft. high then, but dropped to 20 just as the car pulled up outside a house. The young pilot shot past, but turned and saw the body of one officer being dragged indoors. He swooped over the house and fired his machine-gun into it, and then sent a Verey light into the car, hoping to set it on fire. Presently he was attacked by a bombardment from machine-guns, 'Archies,' and light rockets, so he rose high and took cover in the clouds. But it was not the last episode of his day out. He saw some infantry crossing a wooden bridge and dived at them with rapid bursts of machine-gun fire. They ran like rabbits from a shot-gun, and when he came round again he saw four or five dead lying on the bridge. From the ditches men fired at him with rifles, so he stooped low and strafed them, and then went home quite pleased with himself.

"There were scores of flying men who did these things the day before yesterday. The pilots of two units alone flew an aggregate of 396 hours 25 minutes, and fired 11,258 rounds of machine-gun bullets at ground targets, to say nothing of Verey lights. Those machines were not out in France for exhibition purposes, as gentlemen now abed in England are pleased to think. All this sounds romantic, and certainly there is the romance of youthful courage and fearless spirit. But apart from human courage, the ugliness and foulness of war grow greater month by month, and if anybody speaks to me of war's romance I will tell him of things I have seen to-day and yesterday and make his blood run cold. For the sum of human agony is high."



which they work. We wish this latest addition to house journals every success.

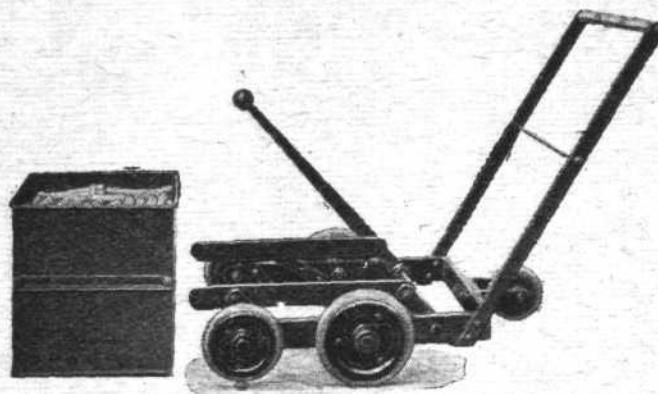
ONCE again the authorities have caused the Coats Machine Tool Co., Ltd., to seek fresh quarters, and they have now been able to secure temporary accommodation at Thanet House, 231, Strand, London, W.C. 2, to which all communications should now be addressed. The telegraphic address is Oolcomachi, Strand, London, while the telephone number is City 626 (2 lines).

THE warm reception accorded to his book "Trade as a Science," has led Mr. Ernest J. P. Benn to write another, and in "The Trade of To-Morrow" he pleads for real organisation of British trade after the war. He points out that there are 28,678 local authorities to look after such matters as sewers, cemeteries, lighting, &c.; surely the control of our trade is worth as much attention. In his book Mr. Benn has adopted the unconventional method of setting down his "conclusions" in the first chapter, and then proceeds to discuss them in detail. Briefly Mr. Benn's scheme includes (1) the appointment of a Minister of Commerce for the purpose of fostering and facilitating the self-advancement of British Trade; (2) the creation in connection with every industry of a Trade Council to which the Government would delegate every question connected with that industry; (3) the extension of the franchise to cover trading interests, so that every working man would have the right to be a voting member of some trade union, while every employer would enjoy a similar right in connection with a trade association. The book, which is well printed and bound in cloth, is published by Messrs. Jarrold, and no business man, whether he sees eye to eye with the author in his arguments or not, could regret the half-a-crown which it costs.

A USEFUL AND HANDY TRUCK.

NOT the least of the worries of a works manager, especially where the works cover a good deal of ground, is the problem of transporting the many small items and fittings from one department to another. To such the merits of the "U" frame Jacktruck, which is the invention of a practical man,

The Jacktruck with the box is then easily wheeled to any weighing machine, gauging room, packing room, or other spot where required. The Jacktruck will turn round either way in its own length, and can easily be pushed in or out of awkward places. It is of metal, and the wheels are fitted with



The "U" frame Jacktruck being pushed under the carrying flanges on the sides of the bin.

will make an irresistible appeal. Its simpleness in design and use is well shown by our two illustrations. In the first the truck is ready to be pushed under the flanges on the sides of the bin; the hand-lever is then pulled back, lifting the bin off the ground.



THE R.S.B. SENSITIVE DRILLS.

NOTHING succeeds like success, and the repeated orders for R.S.B. sensitive drilling machines, if anything, shows that the efforts of Messrs. R. S. Brookman and Co., of 14, Wellesley Avenue, Hammersmith, W., to produce a British high-grade machine to compete in price with cheap foreign machines, have not been in vain. The drill has been designed so that by varying the body or the table, or the chuck, about 140 different patterns or styles can be made up. Two of the arrangements are shown in our photos. Type Gc is a simple machine which has proved very popular for both jig work and general shop use. It is fitted with a 7½-in. diameter table with steel central leg, permitting 4½ ins. vertical adjustment, mounted on an adjustable arm swinging on the column. This machine can also be obtained mounted on a pillar or for dealing with small fittings which require two or more operations. It is a simple matter to mount two or more machines side by side on a standard. By this arrangement only one main driving belt is required, the jockey or idler pulley also acting as an efficient belt adjuster.

The other machine illustrated—the type Ge—is another which has demonstrated its practicability by the continued demand for it. In this case the table has a vertical adjustment of 21 ins. with a maximum height of 25 ins. from table to spindle.

Apart from the plain table which is shown on the machines illustrated, the firm supply a circular machined table with an oil retaining rim, a square table on similar lines as well as two patterns of angle or drop-sided tables. In the ordinary way the machines are supplied with standard spindle end and without a chuck, but three patterns of chucks can be supplied for dealing with drills up to ½ in. in diameter.

A heavier type of machine can also be supplied capable of drilling up to 4 ins. This is built on similar lines to the smaller series, and can be had in a variety of combination.

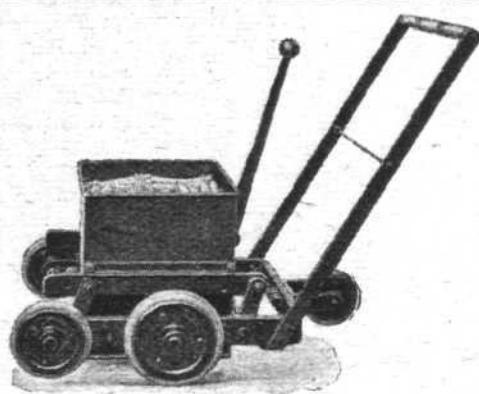
Space does not permit of the details of the full series of R.S.B. sensitive drills being set forth *in extenso*, but Messrs. R. S. Brookman and Co. publish a little booklet which clearly shows all information together with prices, and they will be pleased to send a copy to anyone interested. The firm is essentially up-to-date.



Raids on Frankfort.

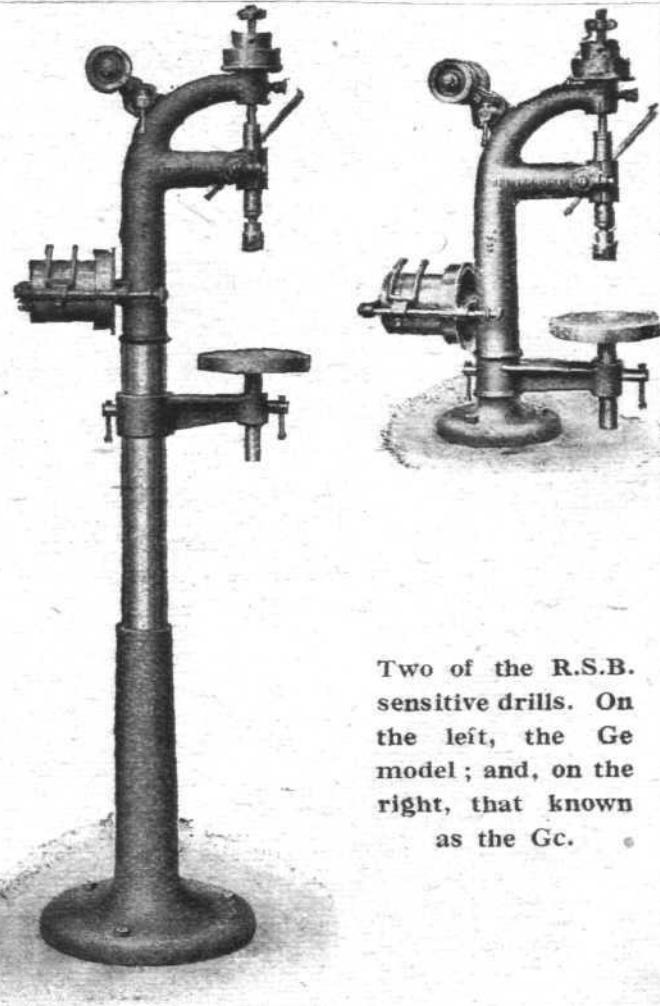
A TELEGRAM received in Amsterdam on August 13th from Frankfort-on-Main stated:—"A bomb was dropped by an enemy airman on August 11th. It killed nobody, and wounded a few inmates of a hospital slightly. — The airman dropped five further bombs in a small wood west of Frankfort without causing any damage.

"On the following day an enemy airman again appeared over Frankfort and dropped several bombs, which fell in crowded streets and killed four people and injured several."



The bin lifted and ready for transportation.

roller bearings. All parts are standardised, and it can be built in any size to suit boxes up to 2 feet wide. It is claimed by the makers—Messrs. J. T. Hardaker, Ltd., of Bowling Ironworks, Bradford—that one "U" frame Jacktruck with 30 boxes is as efficient as 30 ordinary transveying trucks—of course at far less cost.



Two of the R.S.B. sensitive drills. On the left, the Ge model; and, on the right, that known as the Gc.

International Standardisation.

THE International Committee to standardise the metal parts of aircraft held its first meeting in New York on August 8th, says a Reuter message. Representatives of the United States, Great Britain, France, Italy, and Canada were present.

It is added that the work is expected to reduce the thousands of metal parts now made in innumerable sizes to a few standard shapes, thus facilitating aircraft production on an enormous scale for the Allies.

LEGAL INTELLIGENCE.

Admiralty Contracts for Aircraft.

At Bow Street Police Court on August 10th Sir John Dickinson resumed the hearing of the case in which W. A. Casson, and Wing Commander John Cyril Porte, R.N.A.S., are charged with having unlawfully conspired together and with Lyman J. Seeley and other persons to contravene and set aside the Prevention of Corruption Act, 1906, in respect of divers sums of money, amounting to about £48,000, paid from time to time to, and received by, Porte, an agent of the Crown, in respect of certain contracts made between the Lords Commissioners of the Admiralty and the Curtiss Aeroplane Co., of New York.

Mr. R. D. Muir now represented Commander Porte, while Mr. Patrick Hastings represented Casson. Sir A. Bodkin with the Attorney-General and Mr. H. D. Roome were for the Crown.

The case for the prosecution was outlined in our last issue. Commander Porte, who was taken ill at the previous hearing, was unable to be present, and Dr. W. Wilkinson said that Commander Porte was suffering from an advanced stage of chronic pulmonary tuberculosis, and ought to have some weeks of rest to avert certain dangers which threatened him. It was decided to proceed with the case in Commander Porte's absence.

Chief Inspector Henry Fowler, of Scotland Yard, gave details of the arrest of Casson, and said on searching him at Cannon Row Police station he found upon him a letter signed J. C. Porte, bearing the postmark "Felixstowe, 22-7-17," and containing this passage:—"Things are going to move, and I think it most desirable that you should be off as soon as possible." Witness proceeded to give particulars of letters, and other papers, he found at Casson's house, at Bedford Road, Chiswick. Some of the papers had obvious reference to the transactions out of which this prosecution arose. One of the papers mentioned a sum of £2,419 12s. 5d. as commission to July, 1915, and another of a sum of £11,380 12s. 10d., as commission to some other date. There was also found a power of attorney from Porte in favour of Casson.

Sub-Lieut. G. Marsden, R.N., a barrister-at-law, who acted as Secretary of the inquiry held early this year by the Admiralty relative to the Curtiss contracts, described some of the proceedings at the inquiry.

He said: Commander Porte was away on sick leave at Brighton when he received the summons, by telegram, to attend the Committee at the Admiralty. He was not legally represented at the Committee, and he was not warned that he need not answer any questions which might incriminate him.

Mr. Muir: Was anything said at the meeting warning him that a prosecution might follow after the evidence he had given?—No.

Did Seeley give evidence before the Committee?—No.

What was the composition of the Committee?—Mr. J. G. Butcher, K.C., M.P., chairman; Sir Oswin Murray, Assistant Secretary to the Admiralty; Mr. Charles Lawrence, and myself.

Mr. Hastings: Was Commander Porte the first witness?—Oh, no. We decided to call him after suspicion appeared to be attached to his name as a result of prior evidence. We had some difficulty in finding out whether he rightly could be called before that Committee. It was decided he could be called.

Sir Archibald Bodkin: In your opinion—you are an expert, you know—was Commander Porte treated with perfect fairness and consideration?—He was certainly treated with consideration.

Do you object to the word fairness?

* I don't think any deceptive questions or questions intended to trap him were put to him, but—I don't think I should have adopted the same sort of examination myself.

Who put most of the questions?—Mr. Butcher, K.C.

At the hearing on August 11th, Commodore Sueter called by Sir A. Bodkin, for the Admiralty, said the Admiralty were much interested in Commander Porte's proposal to fly across the Atlantic and they sent out an officer to assist in adjusting the compasses. On the outbreak of war when Commander Porte came home and rejoined the service, Commodore Sueter discussed with him the Curtiss boats and it was agreed to purchase two of them, the negotiations for the contracts being carried through by Porte. The boats arrived in October or November, 1914, and were put together and tested at Felixstowe by Porte and Commodore Sueter, the latter reporting that when developed they would be most useful machines. Later four more were ordered, the negotiations again being carried through by Commander Porte and the Director of Contracts. Orders were also given for other

boats and motors. The Admiralty took the whole output for the six months March to September, 1915.

In August, 1915, Commander Porte was sent to America with several improvements in the design of the flying boats, and on his return further orders for seaplanes, aeroplanes, different kinds of engines, accessories, and spares. By June, 1916, delivery was very late, and Lieutenant Neilson was sent out. On his return he told the witness of certain commissions connected with the Curtiss Co. That was the first he had heard of commissions.

On the return of Lieutenant Neilson, Seeley went to see Commodore Sueter, and the matter of commissions was discussed. Seeley said he was an agent of the Curtiss Co. and had a legitimate commission. Asked as to whether any officers in the Air Department had taken any commission he said, "No, not a single one."

Commodore Sueter added that Porte was a highly skilled officer, and one whose integrity he had never had reason to doubt.

Wing-Commander Spencer Grey, R.N.A.S., said that while in America he heard that commissions were being paid in connection with Admiralty contracts with the Curtiss Co.

Wing-Commander G. C. Neilson, R.N.A.S., said that on one occasion Seeley made a very involved statement about the commission. "He told me that 15 per cent. commission was divided between himself and Casson," said witness, "and also that he had an extra 1 per cent. Seeley was very nervous, almost incoherent. I pressed him for further information and told him that I had reckoned up the commission and that it came to about £180,000. I said to him, 'Why should Casson have all that money for living at the seaside?' Seeley was very indignant, and said that I was making terrible and criminal accusations against him. He said he would not allow me to accuse him of bribery. Seeley told me that there was nobody else sharing the commission but himself and Casson."

The case was again adjourned.

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